Assiut University
Faculty of Pharmacy
Department of Industrial Pharmacy

Periodical Exam on Industrial Pharmacy I (PHI-522)

Date: November 23,2010 Time allowed: one Hour

General Instructions;

1.Explain your answers with diagrams and/or equations when ever possible

2.This examination carries 15//50 points.

3.Answers on both sides of the answer sheets supplied

Answer the following questions:

Q.1. Draw a neat annotated sketch for the Bollman extractor, describe how it operates and mention its use(s). 3 *points*

Q.2. Write an essay on each of the following:

a. Types of corrosion. 2 *points*

b. Factors affecting corrosion. 2.5 *points*

Q.3. Compare between wet and dry condensers. 3.5 *points*

Q.4. Explain the theory of film formation in the falling film evaporator. Enumerate the pharmaceutical uses of film evaporators. 4 *points*

GOOD LUCK

Toxicology

Name of the student:

In the answer sheet, shade the most appropriate answer for each MCQ question:

I-Occupational toxicology deals with all of the following EXCEPT:

A) Identify the agents that could be toxic

B) Define the conditions leading to the safe use of these agents

C) Prevent absorption of harmful amounts

D) Treatment of the case if toxicity happens

2- All of the following agents exert their toxic effect through the corresponding enzyme EXCEPT:

A) Salicylates -- peroxidase

B) Cyanides -- cytochrome oxidase

C) Parathione -- cholinesterase

D) Digitalis -- N a K ATPase enzyme

3-All of the following skin changes occur with the corresponding toxin EXCEPT:

A) Wet in alcohol

B) Dry in opium

C) Red in CN

D) Flushed in atropine

4- Induction of emesis is absolutely contraindicated in all of the following cases EXCEPT:

A) Ingestion of phenol

B) In congestive heart failure

C) Ingestion of barbiturate

D) In pregnancy

5-All of the following are chemical antidotes EXCEPT:

A) Tannic acid

B) Sodium sulphate

C) Iodine solution

D) Alcohol

6-ONE of the following is a method of mechanical removal of the toxic agent from circulation:

A) Peritoneal heamodialysis B) Acidification of urine

C) Administration of fluids D) Administration of osmotic diuretics

7- Concerning hemochromatosis, one of the following is INCORRECT:

A) The rate of absorption of the metal is more than the rate of excretion.

B) EDTA is effective for treatment

C) Pancreatic degeneration and diabetes take place

D) It is a type of genetic abnormality

8-Regarding heavy metal toxicity, all of the following statements are false EXCEPT:

A)Ricewatery stools are characteristic of mercury vapor intoxication

B)Mee's lines are found characteristically in the fingernails of iron intoxicated cases

C)Both arsenicals and lead compounds may cause encephalopathy

D)Intoxication from both mercury vapor and divalent copper may cause severe salivation and gingivitis.

9-ONE of the following is a specific antidote to sodium fluoroacetate

A) Sodium trisilicate B) Glyceryl monocitrate

C) Ammonium trisilicate D) Glyceryl monoacetate

lO-Regarding carbolic acid, all the following are false EXCEPT:

A)Colorless crystals with an acrid taste

B)Polyuria and vomiting are common in cases of its poisoning

C)Centrally acting emetics should be used with great care

D) Intense pain occurs on its contact with skin

11- With regard to drug-induced hepatotoxicity all the following are false <u>EXCEPT:</u>

A) Jaundice develops after 4-5 months after initiation of isoniazide therapy

B) Oxytetracycline and tetracycline provide high incidence of hepatotoxicity

C) Chronic administration of methotrexate in rheumatoid arthritis may causes liver cirrhosis

D) Hepatocellular jaundice is a prominent feature in androgen-induced hepatotoxicity

<u>12-Fanconi's syndrome occurs on use of outdated:</u>

A) Sulphonamides B) Tetracyclines

C) Cephalosporins D) Macrolides

13-Urine turns green in toxicity of <u>ONE</u> of the following:

A) Aminoglycosides B) NaOH

C) Phenol D) H_2SO_4

14- <u>ONE</u> of the following statements is <u>TRUE</u>:

A) Metabolically inactive cells are sensitive to ampicillin

B) Penicillin G can be administered simultaneously with gentamycin through the same I.V. line

C) Decreased platelet aggregation is an untoward effect of ticarcillin

D) Gatifloxacin and moxifloxacin block bacterial RNA synthesis by inhibiting bacterial topoisomerase II and IV

I5-<u>ONE</u> of the following penicillins is resistant to gastric acid:

A) Penicillin G B) Penicillin V

C) Carbenicillin D) Procaine penicillin

In the answer sheet. shade (T) for true statements and eF) (or False ones:-

1- Trovafloxacin can be used safely in patients above 18 years of age with renal failure

2-The bactericidal effect of tetracycline is due to its binding to 30S ribosomal subunit that leads to inhibition of protein synthesis

3-Constipation and skin rashes are the main side effects of clindamycin

4- Therapy with combined antimicrobial agents increase the dose-related toxicity by using reduced doses of both drugs

5-Erythromycin is a bactericidal only at high concentratons

6-Sulfadiazine combined with pyremethamine is the drug of choice in treatment of toxoplasmosis

7-Aminoglycosides antibiotics include streptomycin, erythromycin and gentamicin

8-Administration of pyridoxine prevents the peripheral neuritis in case of isoniazid therapy

9- Isoniazid can increase the metabolism of phenytoin

10-Impaired liver function with jaundice and decreased immune response are the main adverse effects of rifampin

11-Ethambutol is a bactericidal agent used in the treatment of TB and it is excreted unchanged in urine

12- The pentavalent arsenic is more toxic than the trivalent one

13- The trivalent arsenicals uncouple mitochondrial oxidation from phosphorylation.

14- Sodium fluoroacetate inhibits aconitase enzyme

Directions: Please fill in marks like this:● Not like this: ○⊗

ANSWER SHEET

Subject:. Final Exam of Toxicology Fourth year " Pharmacy Students" .

Date : 9 / 1 /2011

Secret NUM.:

Hundreds:	⓪	①	②	③	④	⑤	⑥	⑦	⑧	⑨
Tens:	⓪	①	②	③	④	⑤	⑥	⑦	⑧	⑨
units:	⓪	①	②	③	④	⑤	⑥	⑦	⑧	⑨

تنبيه هام: على الطلاب الرجاء عدم كتابة أي اسم أو أي رقم أو علامة في هذا الجزء

1	Ⓣ	Ⓕ	21	Ⓣ	Ⓕ	41	Ⓣ	Ⓕ	61	Ⓣ	Ⓕ
2	Ⓣ	Ⓕ	22	Ⓣ	Ⓕ	42	Ⓣ	Ⓕ	62	Ⓣ	Ⓕ
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5	Ⓣ	Ⓕ	25	Ⓣ	Ⓕ	45	Ⓣ	Ⓕ	65	Ⓣ	Ⓕ
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9	Ⓣ	Ⓕ	29	Ⓣ	Ⓕ	49	Ⓣ	Ⓕ	69	Ⓣ	Ⓕ
10	Ⓣ	Ⓕ	30	Ⓣ	Ⓕ	50	Ⓣ	Ⓕ	70	Ⓣ	Ⓕ
11	Ⓣ	Ⓕ	31	Ⓣ	Ⓕ	51	Ⓣ	Ⓕ	71	Ⓣ	Ⓕ
12	Ⓣ	Ⓕ	32	Ⓣ	Ⓕ	52	Ⓣ	Ⓕ	72	Ⓣ	Ⓕ
13	Ⓣ	Ⓕ	33	Ⓣ	Ⓕ	53	Ⓣ	Ⓕ	73	Ⓣ	Ⓕ
14	Ⓣ	Ⓕ	34	Ⓣ	Ⓕ	54	Ⓣ	Ⓕ	74	Ⓣ	Ⓕ
15	Ⓣ	Ⓕ	35	Ⓣ	Ⓕ	55	Ⓣ	Ⓕ	75	Ⓣ	Ⓕ
16	Ⓣ	Ⓕ	36	Ⓣ	Ⓕ	56	Ⓣ	Ⓕ	76	Ⓣ	Ⓕ
17	Ⓣ	Ⓕ	37	Ⓣ	Ⓕ	57	Ⓣ	Ⓕ	77	Ⓣ	Ⓕ
18	Ⓣ	Ⓕ	38	Ⓣ	Ⓕ	58	Ⓣ	Ⓕ	78	Ⓣ	Ⓕ
19	Ⓣ	Ⓕ	39	Ⓣ	Ⓕ	59	Ⓣ	Ⓕ	79	Ⓣ	Ⓕ
20	Ⓣ	Ⓕ	40	Ⓣ	Ⓕ	60	Ⓣ	Ⓕ	80	Ⓣ	Ⓕ

In the answer sheet, shade the most appropriate answer for each of the following MCQs:

I-Clinical toxicology deals with ONE of the following:

A) Identification of the agents that could be toxic
B) Define the conditions leading to the safe use of these agents
C) Prevention of absorption of harmful amounts
D) Diagnosis and treatment of the case if toxicity occurs

2-Concerning molecular toxicology all of the following statements are TRUE EXCEPT:

A) It deals with the toxic effects of poisons on the molecular level
B) It includes the structure-activity relationship study of poisons
C) It deals with the interaction of poisons with its receptors or other enzymes
D) It comprises the analytical analysis of the specified poison

3- All of the following agents exert their toxic effect through the corresponding neurotransmitter EXCEPT:

A) Salicylates -- prostaglandins B) Barbiturates -- GABA
C) Botulinum toxin -- acetylcholine D) Strychnine -- glycine

4-ln some individuals, the genetic deficiency of the corresponding enzyme lead to deleterious toxic effects of the predisposing agent EXCEPT:

A) Isoniazide -- acetyltransferase B) Succinylcholine - pseudocholinesterase
C)Paracetamol - superoxide dismutase .
D)Fava beans - glucose-6-phosphate dehydrogenase

5-Physio-mechanical antidotes include all of the following EXCEPT:

A)Diluents B) Precipitants
C)Dissolvents D) Entanglers

6-Pestiddes include all of the following chemicals EXCEPT:

A)Bactericides B) Insecticides
C)Fungicides D) Herbicides

7-Which of the following statements is INCORRECT concerning Parathione:

A)It increases bronchial secretions and causes bradycardia
B)Initial stimulation then depression of the respiratory function
C)Initial stimulation then blockade of the autonomic ganglia
D)Inhibition of inhibitory neurotransmitters

8-0NE of the following is a specific antidote to sodium fluoroacetate

A) Sodium trisilicate B) Glyceryl monocitrate
C) Ammonium trisilicate D) Glyceryl monoacetate

9-Mechanism of action of sodium fluoroacetate includes all of the following EXCEPT:

A)It interferes with Kreb's cycle B) It forms fluorocitrate
C)It blocks cellular metabolism D) It forms fluoroacetic acid

10- Which of the following statements is INCORRECT regarding toxicity of warfarin:

A) It decreases prothrombin synthesis
B) It inhibits vitamin K epoxide reductase enzyme
C) Bleeding is the cause of death
D) KCI solution is used for treatment of toxicity

11-Concerning lead toxicity, all of the following statements are TRUE EXCEPT:

A) The percentage of lead absorption in children is less than that in adults
B) It is highly bound to hemoglobin in the erythrocytes
C) After absorption it is initially distributed to kidneys and liver
D) It is deposited in bones, teeth and hair

12-Concerning hemochromatosis, one of the following is INCORRECT:

A) The rate of absorption of the metal is more than the rate of excretion.
B) EDT A is effective for treatment
C) Pancreatic degeneration and diabetes take place
D) It is a type of genetic abnormality

13-AII of the following agents are used in treatment of arsenic toxicity EXCEPT:

A)Dimercaprol B) Penicillamine
C) L-cysteine D) Succimer

14-Concerning acute iron toxicity, which of the following symptoms appear after 6 -24 hours from ingestion:

A)Nausea and vomiting B)An apparent period of improvement
C)Fever and metabolic acidosis D) Intestinal obstruction

I5-Regarding heavy metal toxicity, all of the **following statements are FALSE EXCEPT:**

A) Ricewatery stools are characteristic of mercury vapor intoxication
B) Mee's lines are found characteristically in the fingernails of iron intoxicated cases
C) Both arsenicals and lead compounds may cause encephalopathy
D) Intoxication from both mercury vapor and divalent copper may cause severe salivation and gingivitis.

16- The following statements include general lines for handling forensic samples EXCEPT:

A) There must be a written account of the history of the case
B) Samples from different organs or tissues should be sent to the forensic chemist
C) Each sample should be inserted in a clean, wide-mouthed plastic jar
D) It is preferable not to add any preservative

17 - The task of a forensic toxicologist is made more difficult because of limitation of all of the following EXCEPT:

A) The analytical material B) The available time
C) The method of analysis D) The resources

18- The odor of bitter almond in a forensic sample indicates the presence of all of the following agents EXCEPT:

A) Hydrogen cyanide B) Phenol
C) Nitrobenzene D) Benzaldehyde

19- The following pairs denotes the color of a sample and its corresponding suspected poison EXCEPT:

A) Yellow -- picric or nitric acid B) Rose - copper
C) Green -- arsenic D) Dark or charred -- sulphuric acid

20- The following pairs denote the color test and its corresponding poison EXCEPT:

A)Dicbromate test - alcohols B) Silver nitrate test - halides
C)Ferric chloride test -- salicylates or phenols D) Fujiwara test - pesticides

21- One of the following statements is <u>INCORRECT</u> regarding corrosives:
A) Emetics are never indicated in poisoning with concentrated sulphuric acid
B) Diarrhea is less common with sodium hydroxide poisoning
C) Gastric lavage can be applied in treating phenol poisoning
D) No Vomiting occurs if a large quantity of concentrated sulphoric acid is ingested
22- One of the following statements is <u>INCORRECT</u> regarding corrosives:
A) Emetics are never indicated in poisoning with concentrated sulphuric acid
B) Diarrhea is less common with sodium hydroxide poisoning
C) Gastric lavage can be applied in treating phenol poisoning
D) No vomiting occurs if a large quantity of concentrated sulphuric acid is ingested
23-With regard to corrosives, one of the following statements is <u>INCORRECT:</u>
A) Syrup of ipeca should not be used in patient who have ingested a corrosive
B) Plasma transfusion is the life saving measure that should be undertaken in a shocked patient with major skin bums
C) Vinegar can be used in treating sodium hydroxide poisoning
D) As a chemical antidote, egg white is used in treating phenol poisoning
24-All the following statements regarding venom toxicity are <u>INCORRECT EXCEPT:-</u>
A) All venoms known are of animal origin
B) Lethal effects of the venom is owed to the non-enzymatic component
C) Constricting bands proximal and distal to the bite should be remained for at least one day
D) The first step in treatment is to wash the bitten area with alcohol
25- With which of the following hepatotoxic agents, hepatic carcinoma was reported after chronic use:
A) Methotrexate for rheumatoid arthritis B) Isoniazide for tuberculosis
C) Methyltestosterone as a replacement therapy
D) Nicotinic acid as antihyperlipidemic agent
26- All the following measures of treatment can be applied to a patient who has ingested concentrated H2S04 for suicidal purpose <u>EXCEPT:</u>
A) I.V. fluids B) I.V. Dexamethasone
C) I.V. NaHC03 D) I.V. morphine
27 - Which of the following agents may cause obstructive nephropathy?
A) Gentamicin B) Methotrexate
C) Amphotericin B D) Demeclocycline
28- <u>ONE</u> of the following drugs has a low solubility in urine, therefore patients should be well hydrated to prevent nephrotoxicity
A) Amantadine B) Indinavir
C}Oseltamivir D) Acyclovir
29-Methaemoglobin forming drugs include all the following <u>EXCEPT:</u>
A) 4-DMAP B) Sodium nitrite
C) Amyl nitrite D) Sodium thiosulfate
30-Concerning CO poisoning, all the following are <u>CORRECT EXCEPT:</u>
A) Poisoning occur more often in the fall and winter months
B)10% carboxyhemoglobin can decrease peripheral and night vision
C)Even with proper medical treatment, few people can develop long-term brain damage
D)Hyperbaric oxygen is indicated to all cases of CO poisoning

31-All the following individuals are at high risk and/or exhibit severe symptoms of CO poisoning EXCEPT:

A) A pregnant woman B) An anemic patient
C) A case of hypothyroidism D) A young child

32- The value of carbogen mixture in treating CO toxicity is to:

A)Decrease carboxyhemoglobin half life B) Displaces CO from tissues
C)Improves oxygen carrying capacity of hemoglobin D) Correct acidosis

33-Regarding cyanide toxicity and its management, ONE of the following is INCORRECT:

A) Achlorhydria limits cyanide absorption
B) The antidote of choice is hydroxycobolamine
C) At 20% methemoglobinemia, the victim is still alive
D) Mouth to mouth breathing should be avoided

34- ONE of the following is NOT used in management of opiate addiction:

A) Naloxone B) Lofexidine
C) Buprenorphine D) LAAM

35- Regarding cocaine abuse and toxicity, ONE statement is CORRECT:

A) Mydriasis is among manifestations of cocaine abuse
B) Smugglers commonly snort cocaine
C) Hypothermia is a life threatening symptom of toxicity
D) Emetics are usually applied to prevent further absorption

36- The following pairs represent the mechanism of action of some antibacterials and their corresponding examples EXCEPT:

A) Inhibition of cell wall synthesis - cephalosporins
B) Inhibition of nucleic acid synthesis - rifampicin
C) Inhibition of intermediary metabolism - nystatin
D) Inhibition of protein synthesis - tetracyclines

37 - The following pairs represent the mechanism of bacterial resistance and the corresponding antibacterial drug example EXCEPT:

A) Decreased accumulation of the drug - aminoglycosides
B) Alteration of the drug binding site - isoniazide
C) Development of an alternative metabolic pathway - trimethoprime
D) Production of enzymes that inactivate the drug -- penicillins

38- Transfer of resistance genes takes place through all of the following EXCEPT:

A) Mutation B)Conjugation
C)Transduction D)Transformation

39-Disadvantages of antibiotic combinations include all of the following EXCEPT:

A)Increased cost B) Antagonism of effects
C)Potentiation of effects D) Increased incidence of adverse effects

40- The mechanism of action of sulphonamides include all of the following EXCEPT:

A) Chemically, they are structural analogues to PABA
B) They inhibit dihydropteroate synthase enzyme C)They inhibit dihydrofolate reductase enzyme
D) They inhibit purine synthesis

41-AII of the following are among the.adverse effects of sulphonamides EXCEPT:

A)Cyanosis B) Photosensitivity
C)Crystalluria D) Leukocytosis

42-Microbial resistance to aminoglycosides includes all of the following EXCEPT:

A) Interference with the permeation of the drug B) Anaerobes are naturally resistant
C)Alteration in the 50S ribosomal subunit D) Secretion of inactivating enzymes

43-AlI of the following are adverse effects of aminoglycosides EXCEPT:

A)Ototoxicity B) Bone marrow depression
C)Neuromuscular blockade D) Nephrotoxicity

44- The following represent first line drugs for treatment of tuberculosis EXCEPT:

A)Rifampin. B) Ethionamide
C)Isoniazid. D) Pyrazinamide.

45-Using drugs for treatment of tuberculosis, which one of the following side effects is CORRECT:

A) Optic neuritis develops with INH and needs drug withdrawal
B)Red orange coloration of urine and saliva with rifampin administration. So, drug administration should be stopped.
C)Using ethambutol, the patient is unable to maintain his equilibrium.
D)Hepatitis develops with INH & drug withdrawal is required only when transaminases increases as much as 5 times of its normal values

46-Which one of the following is INCORECT?

A)Isoniazid is acetylated in the liver either slowly or rapidly.
B)Rifampin inhibits DNA dependent RNA polymerase enzyme.
C)Ethambutol is bactericidal agent which inhibit the incorporation of mycolic acid into the mycobacterial cell wall.
D)Pyrazinamide exhibits bactericidal effect via an unknown mechanism.

47-Regarding tetracyclines, all the following statements are TRUE EXCEPT:

A)They are broad-spectrum bacteristatic antibiotics commonly used to treat acne
B)They bind 50S ribosomal subunit and blocks binding of aminoacyl-tRNA to acceptor site on mRNA
C)Their side effects include nausea, vomiting, diarrhea and pseudomembranous colitis
D)They are contraindicated in children less than 8 years, pregnant or lactating female

48-AlI the following statements are TRUE EXCEPT:

A) The most common adverse effects of ciprofloxacin are nausea, vomiting, and diarrhea.
B) Ciprofloxacin inhibits the metabolism of theophylline and enhances its cardiac toxicity
C) Ciprofloxacin is extensively used in treatment of urinary tract infections and typhoid fever
D) Ciprofloxacin is contraindicated for lactating mothers and postmenopausal females

49-All the following drugs are β-lactamase resistant EXCEPT:

A)Aztreonam B) Imipenem
C)Carbenicillin D) Cloxacillin

50-The primary advantage of benzathine penicillin G over regular penicillin G is that:

A)It displays a greater percentage of CNS penetration
B) It has a much longer half-life
C)It is less susceptible to the β-lactamase enzyme
D) It is more resistant to gastric acidity

51-All the following drugs are acid resistant EXCEPT:

A) Penicillin V B) Penicillin G

C) Ampicillin D) Amoxicillin

52-Regarding features of p.Lactam antibiotics, all the following statements are <u>TRUE EXCEPT:</u>

A)Their bactericidal effect is due to inhibition of cell wall synthesis which protect bacteria from burst

B)Metabolically active cells are insensitive

C)They act synergistically with aminoglycosides

D)The more time the drug binds to bacteria, the more effective it is

53- Chloroquine acts as:

A) Preerythrocytic schizontocide for both P. falcipatum and P. vivax

B) Erythrocytic schizontocide for both P. falcipmum and P. vivax

C) Exoerythrocytic schizontocide for P. vivax

D) Gametocidal for P. falciparum

54- Tinidazole differs from metronidazole in that

A) It is not active against anaerobic bacteria

B) It has a broader spectrum of activity

C) It has a longer elimination half life

D) It has better oral absorption

55- Regarding praziquantel, <u>ONE</u> of the following statements is <u>CORRECT:</u>

A) Not effective if given in a single oral dose

B) It is not effective in fasciola hepatic a infections

C) Effective for treatment of some species of schistosomiasis

D) It acts by causing flaccid paralysis of the worm

56- Which <u>ONE</u> of the following statements about flucytosine is accurate?

A) It is bioactivated by fungal cytosine deaminase

B) It inhibits cytochrome P450

C) It is useful in esophageal candidiasis

D) It has a wide spectrum of antifungal activity

57- <u>ONE</u> of the following inhibits viral reverse transcriptase enzyme:

A) Amantadine B) Zidovudine

C) Vidarabine D) Acyclovir

58- Which <u>ONE</u> of the following agents is able to suppress both Band T lymphocytes via its inhibition of de novo synthesis of purines?

A) Cyclophosphamide B) Methotrexate

C) Mycophenolate mofetil D) Prednisone

59- Select the cell cycle nonspecific antineoplastic drug:

A) Vincristine B) Bleomycin

C) Methotrexate D) Cisplatin

60- Select the drug which is used exclusively in organ transplantation and autoimmune diseases, but not in cancers:

A) Cyclophosphamide B) Cyclosporine

C) Methotrexate D) 6- Mercaptopurine

In the answer sheet, shade "T" for true statements, and "F" for false ones:

I-A pollutant is a substance that occurs in the environment, at least in part as a result of human activity, and which has a deleterious effect on living organisms

2-Acute toxicity is more likely to happen upon exposure to chemicals found in the environment

3-Methylene blue converts ferric to ferrous ions in methemoglobin

4-Nitrites may cause methemoglobinemia due to a genetic abnormality

5- The aim of treatment of any poisoned case is just to reverse the harmful effect of the poison

6- Topical patches of skin corrosion are very indicative for the diagnosis of concentrated HCI or parathione poisoning

7-ln late barbiturate oral poisoning, ipecea syrup must be used to decrease absorption

8-During gastric lavage, an endotracheal tube must be used

9-For treatment of acute toxicity from chlorinated hydrocarbons, symptomatic treatment is the only available measure

l0-Dichloro diphenyl trichloroethane (DDT) is a neuro-toxin

11-Atropine is an efficient cholinesterase reactivator in case of organophosphorus poisoning

12-Sodium fIuoroacetate inhibits aconitase enzyme in Kreb's cycle

13-For treatment of thalium toxicity, systemic chelating agents are given

14-Red squill exerts a selective toxicity to rodents as they lack a vasomotor center

15-I.V. Na2S04 is the specific antidote in barium toxicity

16-ln case of barium toxicity, morphine is given to control severe colic

17-ln lead colic, calcium gluconate is recommended for relief of pain and is usually more effective than morphine

18-Strategy of chelation therapy in lead poisoning is frequently repeated even after virtual disappearance from the blood

19-Degenerative changes in the motoneurons and their axons takes place in cases of acute lead poisoning

20-An ashen color of the face and pallor of the lips are clear symptoms of plumbism

21-Inorganic mercurials readily pass the blood brain barrier

22-Pentavalent arsenicals uncouple mitochondrial oxidative phosphrylation

23-Penicillamine increases the rate of absorption of dietary copper

24- There are only two chemical methods of analysis capable of detecting all types of poisons

25-During the analysis of a forensic sample, all tests should be repeated and compared with control samples to which the indicated poison has been added

26- Yellow color of a forensic sample indicates that there might be picric acid, nitric acid or chromates in the sample

27-ln a forensic sample, if cyanide poison is suspected: then formalin should be added as a preservative

28- X-ray diffraction and infrared spectroscopy are destructive techniques of poison detection

29-Persistence of froth after acidifying a forensic sample indicates the presence of a detergent

30- Reinch test is used to detect the most commonly used toxic metals .

31- N -acetyl cysteine is beneficial in acute paracetamol poisoning because it reacts with paracetamol to form a nontoxic complex.

32- Cyclosporine and sirolimus are associated with renal toxicity

33- A specific I.V. antiserum and prazosin should be immediately given to a patient with snake venom pOIsomng

34- Manifestations of venom toxicity includes coagulation defects, spastic paralysis and respiratory difficulty

35- Aminoglycosides-induced renal toxicity result only from its effects on proximal renal tubules

36- Skin exposure to carbolic acid makes it very dry .

37- Cigarette smokers inhale cyanide

38- Cyanide antidote kit include amyl nitrate inhalant and sodium thiosulfate injection

39- Unlike CO, C02 is poisonous at low doses

40- By binding with ferrous ions in cytochrome oxidase enzyme, cyanide causes cytotoxic hypoxia

41- Use of hyperbaric oxygen is the first line for management of CO toxicity
42-lnhalation of hydrogen cyanide gas at any atmospheric concentration is immediately lethal
43-Probenicid increase the half life of penicillin
44-Protamine sulfate is absolutely contraindicated in case of heparin toxicity
45-Parasympathomimetics will increase the GIT motility and hence increase the absorption of weak acidic drugs
46- Methotrexate is more toxic if given with neomycin
47-Drinking of milk will decrease the activity of co-administered tetracycline
48-Succinyl choline apnea is most common in patients receiving timolol
49-Clofibrate increases the toxicity of dicumarol due to displacement from plasma proteins
50- Phenobarbitone increases the toxicity of parathione
51- Tolbutamide results in severe hypoglycemia if given with sulfphenazole
52-Choleretics increase the renal excretion of salicylates
53-Renal tubular reabsorption is mainly affected by the pH of the urine
54-Potassium sparing diuretics increase the toxicity of digoxin
55-Intravenous injection of calcium will augment the toxicity of oral antacids
56-If MAO inhibitors are given with tyramine-containing food, this leads to hypotensive crisis
57- Vitamin K rich diet decrease the activity of oral anticoagulants like heparin
58- Physical dependence is the primary reason for relapse to addiction
59- Unlike physical dependence, psychological dependence disappears within days or weeks after drug use stops
60- Addiction of a drug with short half-life produces abrupt and intense syndromes of withdrawal
61- Levofloxacin is a bacteristatic antibiotic that blocks DNA synthesis by inhibiting bacterial topoisomerase
62- Trovafloxacin is among quinolones that can be used safely for patients with renal failure
63- Methicillin is a derivative of penicillin which is resistant to gastric acid
64-Cilastatin, an inhibitor of dipeptidase" decreases hydrolysis of imipenem
65-Cefoxitin, Cefuroxime and Cefotetan are 2nd generation cephalosporins that can be given parentrally
66-Cefuroxime and ceftriazone are cephalosporin that can cross blood brain barrier
67 -Concurrent administration of cefotetan and gentamicin causes hepatotoxicity
68- Tetracycline decreases plasma prothrombin activity which require decrease of warfarrin dose
69- The bactericidal effect of tetracycline is due to its binding to 30S ribosomal subunit that leads to inhibition of protein synthesis
70-Doxycycline interferes with bactericidal action of ampicillin
71- Erythromycin is a bactericidal at moderate concentrations
72- Administration of pyridoxine prevents the peripheral neuritis in case of isoniazid therapy
73- Isoniazid can increase the metabolism of phenytoin
74-lsoniazid produces bactericidal effect in M. tuberculosis during its resting state.
75-Rifampin selectively acts on M. tuberculosis. Therefore it cannot be used for infections other than tuberculosis.
76-Ethambutol may lead to reduction in visual acuity and disturbances in color perception
77-Capryomycin is one of the first line treatment of tuberculosis and may induce ototoxicity & nephrotoxicity.
78- Phase specific chemotherapeutic agents include include the antitumor antibiotics
79- Paclitaxel is a M-phase specific antineoplastic agent
80- Tacrolimus and sirolimus shares the same mechanism of action

جامعة أسيوط
كلية الصيدلة

قسم الكيمياء الطبية
Med. Chem. Dept

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4th Year Pharmacy — Med. Chem-3 (PHC-515)
Jan., 13th 2011 — Time allowed: 2 hours

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قبل البدء في الاجابة إقرأ هذه التعليمات جيدا

1. اكتب اسمك ورقم جلوسن باللغة العربية وبخط واضح على غلاف كراسة الاجابة فقط.
2. تأكد أن كراس الامتحان تتكون من 8 ورقات (ستة عشر صفحة) بما فيها صفحة التعليمات وفى حالة تكرار أو نقص أى أوراق اطلب استبدالها فورا.
3. يتكون الامتحان من ثلاث اجزاء ومطلوب الاجابة عليها جميعا.
4. تكتب الاجابات في الفراغات المخصصة بها مع مراعاة رسم المركبات في الفراغ المخصص لها.
5. فى الأسئلة متعددة الاختيارات يتم وضع علامة حول الاجابة الصحيحة فقط.
6. المستطيل المبين على يمين الصفحة فى بداية كل جزء يترك فارغا حيث يقوم السيد الاستاذ الدكتور/ عضو هيئة التدريس بتسجيل الدرجة التى حصل عليها الطالب.
7. ممنوع منعا باتا الكتابة أو الرسم بالقلم الرصاص أو أى الوان.
8. عدم كتابة اسمك أو أى علامات داخل الكراسة.
9. محاولة الاستعانة بالآخرين أو إعانتهم فى اجابة الامتحان يعرضك للمسائلة القانونية من الجامعة وما يترتب عليها.

موعد الامتحان الشفهى
الامتحان الشفهى عقب الامتحان النظرى مباشرة وسيعلن توزيع الطلاب على لجان الامتحان بلوحة الاعلانات بالقسم.

لجنة الامتحان
أ.د./ حسن حسن فرج — أ.د./ نادية محمد أحمد محفوظ
أ.د./ فرغلى عبد الحميد عمر

مع أطيب الأمنيات بالتوفيق والنجاح،،،،،

Part I:

/15

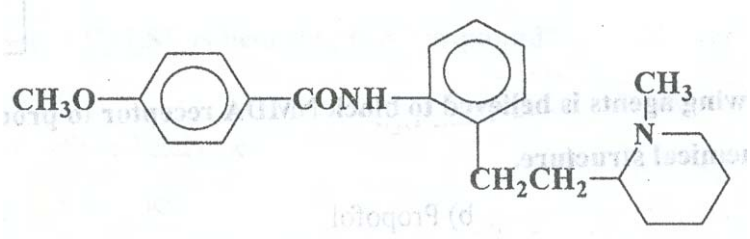
Q: l-A) Draw the structures of FOUR of the following chemically named compounds; mention their GENERIC NAMES and USES: (6 points)

a) l-Hydrazinophthalazine
b) 5-Amino-(3,4'-bipyridin)-6-(1H)-one
c) 2-(Diethylamino)-2',6' -acetoxylidide
d) l-Isopropylamino-3-(l-naphthyloxy)-2-propanol
e) 2-Phenyl-l,3-indandione
f) 3,3' -Methylenebis(4-hydroxycoumarine)

First Generic name: Use:	Second Generic name: Use:
Third Generic name: Use:	Fourth Generic name: Use:

Q: l-B) Give a ~ethod of analysis of ANY ONE of the above compounds: (2.5 points)

Q:II-A) Give the generic name and use of the following compound.



Generic name: .....

Use: .....

Q: II-B) Using equations draw its metabolic pathway; discuss the activity of the metabolites and their effect on the duration (3.5 points)

Q: III) Mark the correct answer(s) for the following:

1) Certain esters of nitric and nitrous acids:

a) Increase Myocardial Oxygen Supply

b) Reduce Peripheral Resistance

c) Reduce Myocardial Oxygen Demand

d) All the above

2) The mentioned esters are used for .....

3) Discuss a method of analysis of nitroglycerin (3 points)

Part (II)

25

1. Which of the following agents is believed to block NMDA receptor to produce an anesthetic state? Draw its chemical structure. (1 point)

a) lsoflurane b) Propofol

c) Ketamine d) Pentobarbital

2. Lithium citrate acts as antipsychotic through: (0.5 point)

a)higher affinity for dopamine and 5HT receptors.

b)prevent release of neurotransmitters through inhibition of sodium pump.

c)inhibition of re uptake of dopamine.

d)enhancement of GABA-ergic neurotransmission.

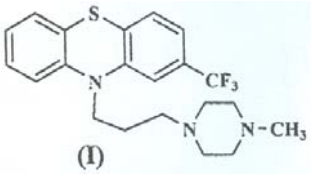
3.The phenothiazine derivative (I) assigned below is generically related to:(1 point)

a) ridazines

b) promazine

c) pirazines

d) oxazepines



(I)

Mechanism of action of drug (I): .....

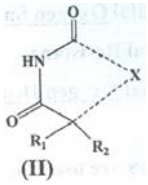
4. What are the possible RI and R2 which afford compounds (11) effective in the control of grand mal epilepsy? (0.5point)

a) $R_1 = R_2 = CH_3$

b) $R_1 = CH_3$; $R_2 = C_2Hs$

c) $R_1 = CH_3$; R_2 = phenyl

d) $R_1 = NH_2$; $R_2 = CH_3$



(II)

5. Some drugs inhibit generalized tonic clonic seizers through: (0.5 point)

a) inactivation of voltage-gated sodium channel

b) inactivation of voltage-gated calcium channel

c) activation of GABA-transaminase enzyme

d) inhibition of GABA release.

6. The Generic name of the drug (III) is ..... (1.0 point)

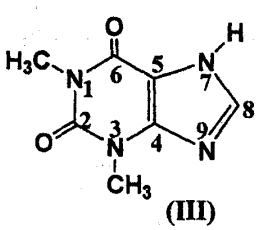
Which of the following is <u>FALSE</u> concerning this compound?

a) Inhibits phosphodiesterase

b) Used with aspirin to relieve headaches

c) Related chemically to xanthines

d) Used mainly to treat symptoms of bronchial asthma.



(III)

7. Which of the following is FALSE concerning Loxapine (IV)? (Draw its structure) (1.0 point)

a)Its use associated with agranulocytosis.

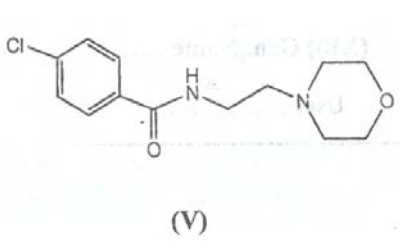
b)Related chemically to benzodiazepines.

c)Related chemically to dibenzazepines.

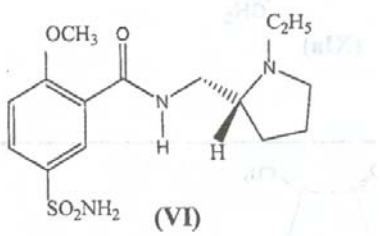
d)Used for treatment of schizophrenia. **(IV)**

8. Which of the following benzamides (V) or (VI) is used as neuroleptic antipsychotic, give reason?

(1 point)



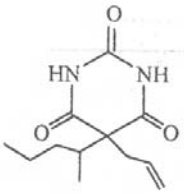
(V)



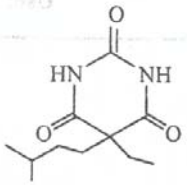
(VI)

Reason: .....

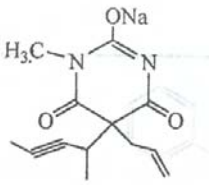
9. Which of the following barbiturates will inactivate CYP 450, give reason? (1 point)



(VII)

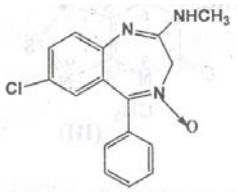


(VIII)



(IX)

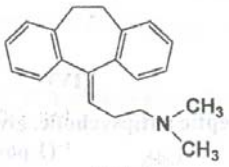
10. The Metabolism of each of the following drugs results inactive metabolites, which are then approved as drugs. In .cach case draw the structure of the active metabolite, mention its generic name and the therapeutic use. (6 points)



(Xa)

(Xb) Gen. Name .....

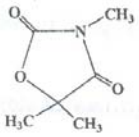
Use; .....



(XIa)

(XIb) Gen. Name .....

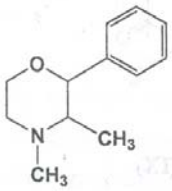
Use; .....



(XIIa)

(XIIb) Gen. Name .....

Use: .....

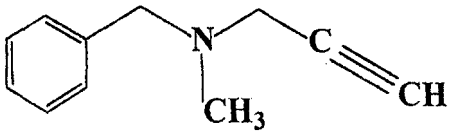


(XIIIa)

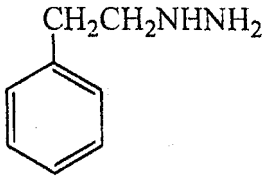
(XIIIb) Gen. Name ....

Use; .....

11. Which of the following drugs is RIMA antidepressant'! Mention the generic name of the drug (XIV) and the chemical name of the drug (XV). (2 points)



(XIV)



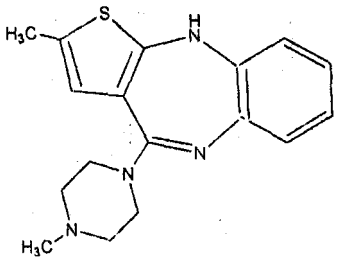
(XV)

Generic name:..... Chemical name: .....

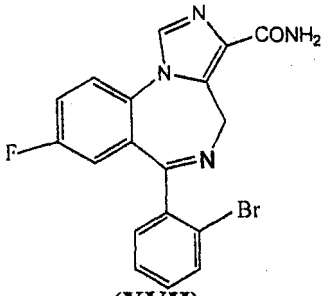
Mention by equation a method of analysis of drug (XV) (1.5 points)

12. Explain with structures, why oxacarbamazepine would be expected to possess fewer side effects than carbamazepine CBZ (2 points)

13. Which of the following drugs is effective in treatment of schizophrenia? (2.5 points)
Mention their generic names and chemical classes.



(XVI)

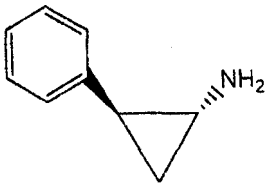


(XVII)

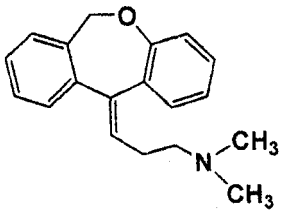
Generic name: .... Generic name: .....

Chemical class: ..... Chemical class: .....

14. Which of the following antidepressants acts through inhibition of neurotransmitters reuptake? (3.5 points)



(XVIII)



(XIX)

Chemical name: ..... Gen. name: .

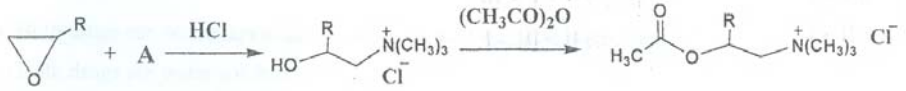
Mechanism of action of drug (XVIII) .....

Synthesis of drug (XIX)

Part (III)

Q-I: (15 points)

A) Select the most correct answer in each of the following MCQs: (20 x 0.5 = 10 points)



Deduce the structure of the Reagent (A) among the following products

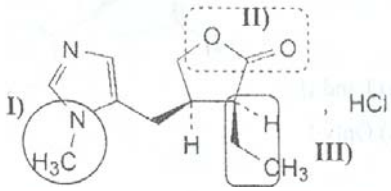
$HOCH_2CH_2NH_2$ CH_3CH_2OH $(CH_3)_2NH$ $(CH_3)_3N$

a) b) c) d)

2) Which of the assigned structural features of pilocarpine is essential for the agonist activity on the parasympathetic receptors?

a) Only I b) Only II

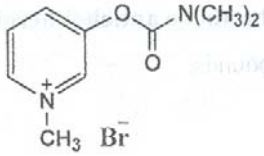
c) I and II d) I and III



3) The generic name of the illustrated compound is:

a) Physostigmine. b) Pyridostigmine

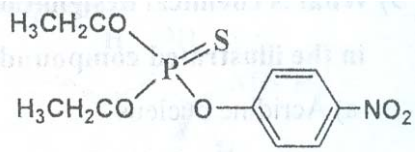
c) Rivastigmine. d) Denepzil.



4) Which of the following is considered as a good leaving group in binding process of the illustrated organophosphate to acetylcholinestrase?

a) The p-nitrophenoxy group b) The Sulfer atom

c) The ethoxy group d) The phenyl ring.



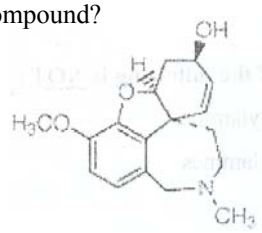
5) Which of the following is TRUE about the illustrated compound?

a) It is a cholinesterase regenerator.

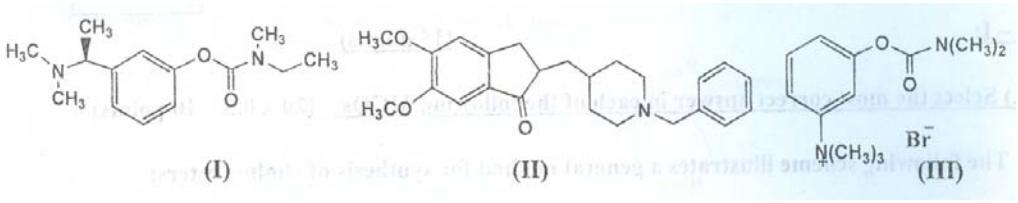
b) It is a reversible cholinesterase inhibitor.

c) It is a muscarinic antagonist.

d) It is skeletal muscle relaxant.



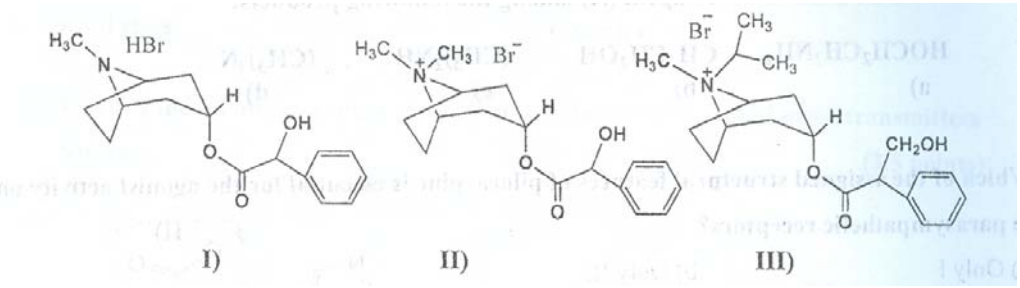
6) Assign the best order of potency of the illustrated drugs in management of Alzheimcr's disease?



a) I > II > III b)II>I >III

c) III > Il > I d) II > III > I

7) Which of the illustrated semisynthetic tropane esters contains mandelic acid.moiety?



a) I and II b) II and III

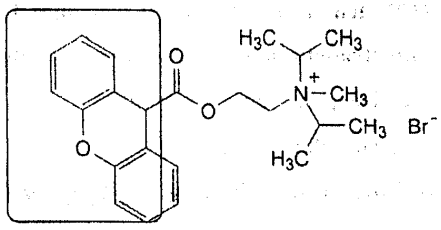
c) Only I d) Only II

8)Which of the above anticholinergic agents is used as inhalation for relief of bronchial asthma?

a) All compounds b) I and II

c) Only III d) II and III.

9)What is chemical designation of the encircled nucleus in the illustrated compound?



a) Acridine nucleus b) Chromane nucleus.

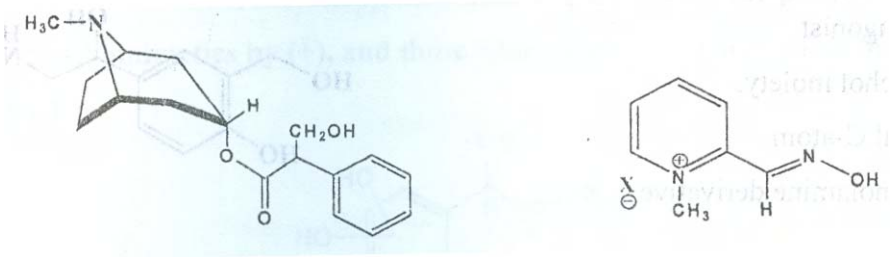
c) Tropane nucleus d) Xanthene nucleus.

10)Which of the following is <u>NOT</u>a known class of the directly acting sympathomimetics?

a) Phenethylamines b) Aryloxypropanolamines

c) Catecholamines d) Imidazolines

11) Given the following structures, which of the statements given below: is/are TRUE?



a)Both drugs can be therapeutically useful for treating pesticide poisoning.

b) Both drugs are water soluble.

c) Both are esters.

d) Both are cholinestrae inhibitors.

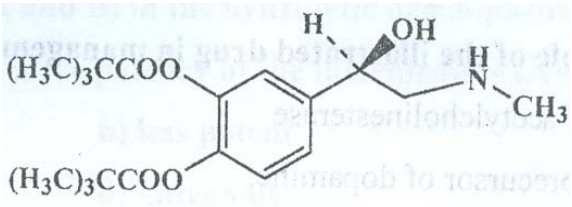
l2) Which of the following acids has been used for preparation of the illustrated prodrug of epinephrine?

a) Pivalic acid.

b) Acetic acid.

c) Boric acid.

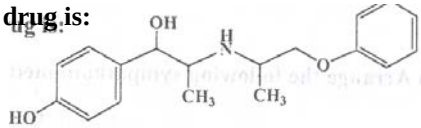
d) Propionic acid.



13) The generic name of the illustrated sympathetic drug is:

a) Doputamine b) lsoxsuprine

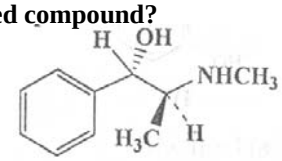
c) Terbutaline d) Phenylephrine



14) Assign the exact stereochemical specification of the illustrated compound?

a) Cis form. b) Trans form

c) Erythro form. d) Threo form



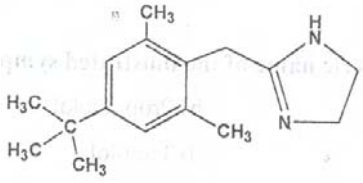
5) What is the expected sympathetic activity of the illustrated drug?

a) α-Agonist

b) β_1-Agonist

c) α-Antagonist

d) No activity.



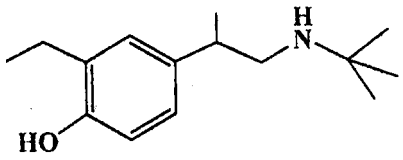
16) Which of the following chBl"aeteri,stics is NOT related to the illustrated drug?

a) It is selective B2-agonist

It contains a catechol moiety

It contains a chiral C-atom

It is a phenylethanolamine derivative



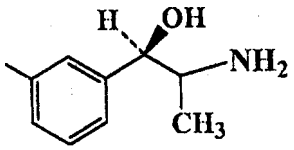
17)What is the therapeutic impact of the methyl substitucnt in the illustrated sympathomimetic agent?

a) Enhances its selectivity as α-agonist.

b) Enhances its selectivity as β-agonist

c) Prolongs its duration of action.

d) lnverses its activity to α-antagonist



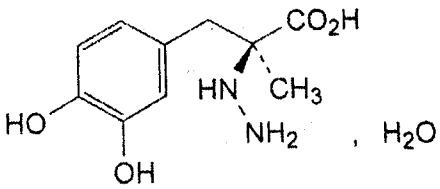
18) What is the role of the illustrated drug in management of Parkinsoll's disease?

a) Inhibitor of acetylcholinesterase

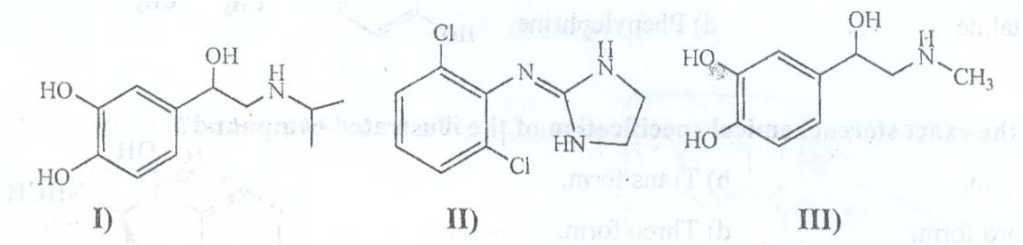
b) A central precursor of dopamine.

c) Inhibitor of central metabolism of L-dopa.

d) Inhibitor of exogenous metabolism of L-dopa



19) Arrange the following sympathomimetic agent according to their affinity for α_1-receptors?



a) I >II >III

b) II > I > III

c) III > II > I

d) II > III > I

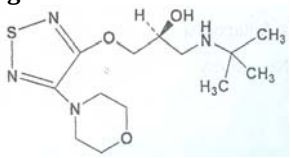
20) What is the generic name of the illustrated sympathetic antagonist?

a) Acebutolol

b) Propranolol

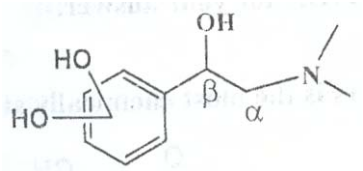
c) Atenolol

d) Timlol



B) Answer the following: (2x2.5=5 points)

1) Assign the chemical modifications which might increase the β selectivity of sympathomimetics by (+), and those which decrease or not affect this selectivity by (-): (2.5 points)



a) Smaller substituent (H; CH_3) on the N-atom. ( )

b) t-Butyl substituent on N-atom. ( )

c) Methyl substituent on α-C-atom. ( )

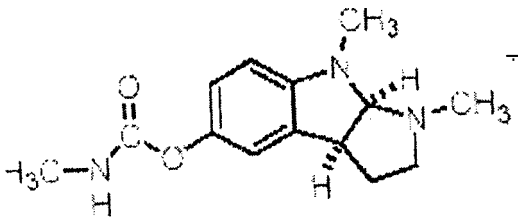
d) Ethyl substituent on α-C-atom. ( )

e) Presence of resorcinol moiety. ( )

2) Complete the missing products (A and B) in the hydrolytic decomposition of physostigmine and indicate the relative potency of the intermediate (A): (2.5 points)

a) more potent b) less potent

c) inactive d) antagonist



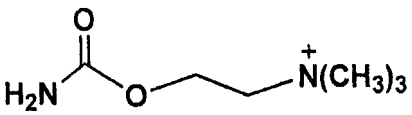
Product A

Product B

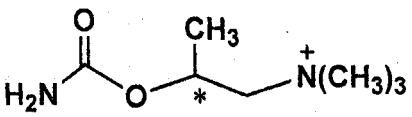
Q: II (10x1.5= 15 points)

- SELECT "A" or "B" or write "BOTH" or "NEITHER" in the following questions.
- Write the generic name whenever is requested.
- PROVIDE a brief EXPLAINATION for your answer.

1) Which of the illustrated choline esters is the most chemically stable?



A

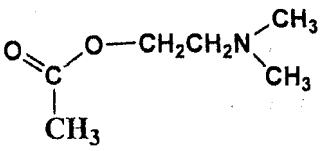


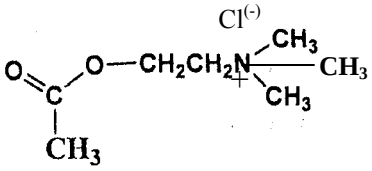
B

Gen. Name: ....

Explanation: .....

2) Which of the following compounds would exert the greater potency as a cholinergic agonist?

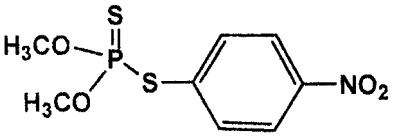


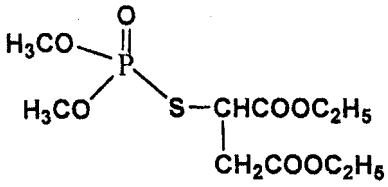


Gen. Name: .....

Explanation .....

3) Which of the following organophophates would be more toxic?



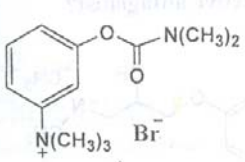


A B

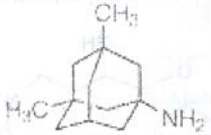
Gen. Name: ....

Explanation: .....

4) Which one is the most effective for treatment of myasthenia gravis?



A

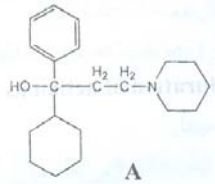


B

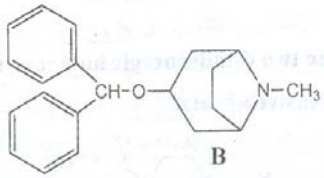
Gen. Name: ....

Explanation .....

5) Which one has longer duration of action as antiparkinsonial agent?



A

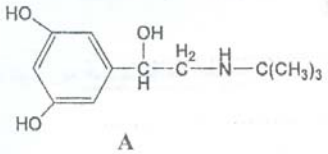


B

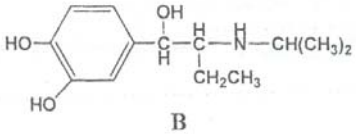
Gen. Name: ....

Explanation .....

6) Which of the following Bronchodilators would have the longest duration of action?



A

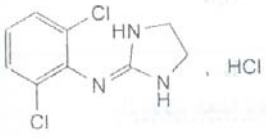


B

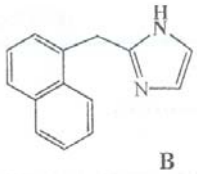
Gen. Name: ....

Explanation .....

7) Which of the following sympathomimetic drugs is most likely to act centrally?



A

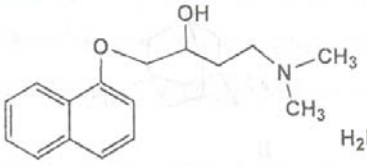


B

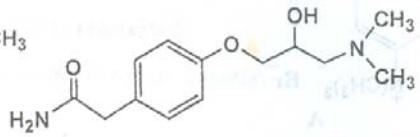
Gen. Name: ....

Explanation .....

8) Which of the following sympathetic drugs is a β_1-selective antagonist?



A

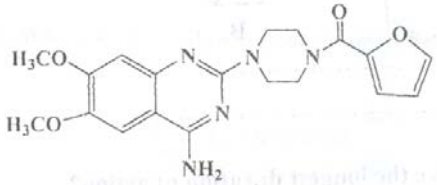


B

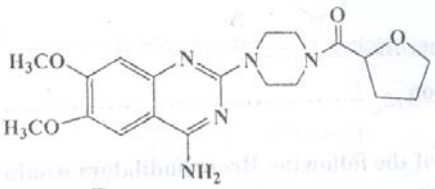
Gen. Name: ....

Explanation .....

9) Which of these two α_1-adrenergic antagonists has longer duration of action as antihypertensive agents?



A

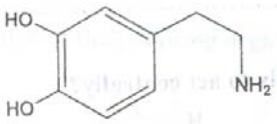


B

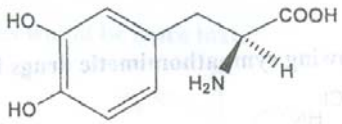
Gen. Name: ....

Explanation .....

10) Which one will be the most effective antiparkinsonial agent after oral administration?



A



B

Gen. Name: ....

Explanation .....

Assiut University
Faculty of Pharmacy
Department of Pharm. Anal. Chem.

General Instructions:
- Be sure that your exam consists of 6 pages
- All pages contain questions accept the last one (blank page).
- Your exam consists of 11 questions and the sum of marks=60 marks
- Give clear and indicative answers as you can.
- Oral exam starts directly after your written exam (at 11 o'clock).

1- How can you determine the acceptance of sampling? (4 Marks)

2- Compare between simple and systematic random sampling (4 Marks)

3- Complete the following sentences with the missing word(s) (7 Marks)

a- Sampling plans consist of ---------- and ----------

b- The minimum sample size can be determined using ----------

c- Quality can be defined as a product or service free of ---------- and quality control can be defined as ---------- of defects, while quality assurance can be defined as ---------- of defects.

d- Deming Cycle is an iterative----------

e- Quality ---------- is concerned with sampling, specifications, testing, organization, documentation & release, and it is a part of quality

f- Sample is a ---------- portion selected from the bulk.

g- The samples can be classified according to the sampling plan into 4 types:

a- ---------- c- ----------

b- ---------- d- ----------

4- Mark [√] for the correct statement and [x] for the wrong one, underline the wrong word or sentences and then correct it in the correction column. (13.5 Mark)

The statement	Mark	Correctin
a. Samples should never be returned to the bulk. b. Sampling tools should be made of active materials, avoid glass c. Disposable sampling materials cannot be used for sampling. d. Representative samples must be taken in very small quantity. e. Karl-Fischer titration method is used for the determination of acids in the compounds in physico-chemical investigation unit f- The analytical method is claimed to be precise if the RSD% of the response exceed 2.5%. g- Specifications describe and give instructions on how work must be done h- In HPLC work, peak shape affects the value of LOD and LOQ. i- LOQ could be calculated by 3(SD/ slope). j- Determination coefficient can take a values in the range -1 to +1. k- Internal standard method is of particular not only in HPLC and GC but also in other analytical method. l- Constant error is dependent on the size of the sample. m- Analytical methods should be available in written form and approved before used. n- Validation process is a confirmation that the method is suited for its Intended purposes. O- In calibration graph the value of slope is express for the method sensitivity.		

5- Complete the following sentences: (4.5 Marks)

a- Types of documents are ..... , ...and .....

b- Areas of pharmaceutical analysis are

1-

2-

3-

4-

c- In selection of the method of analysis you must know ..... and .....

6- Apply the Q test to the following data sets to determine whether the outlying result should be retained or rejected at the 95% confidence level. 7.295, 7.284, 7.388, 7.292. (Q tabulated = 0.829). Determine the type of error? (3 Marks)

7- Calculate the least square line parameters for the data given in the table which used for the construction of calibration curve for procaine HCl determined spectrophotometrically. (4 marks)

Procaine concentration mg/ml	Absorbance reading
0.8	0.600
1.0	0.760
1.2	0.930

8- Define the following terms: (4 Marks)

Penultimate intermediate	By-products
Degradation products	Chiral products
Foreign substances	Ordinary impurities
Signal impurities	Inorganic impurities

9- Write short notes on each of the following: (6 Marks)

- Primary standards

- Factors affecting the limits of impurities in bulk drug substances

- Classification of chemicals depending on their purity

10- The following factors usually cause loss of active drug content of pharmaceutical products: (6 Marks)

- Incompatibility
- Hydrolysis
- Oxidation

Explain and give an example for each with chemical equations whenever possible

11- SIAMs would be achieved via three different approaches which are: (4 Marks)

Total Pages = 8 pages – Marks = 60 marks – Time Allowed 2 hours

(All questions should be attempted)

36

PART 1 (36 marks)

Q.1: Complete the following statements (10 marks)

- Most of the radioisotopes used in medicine have half-lives in the range of ---------- to ----------
- The radioactivity labeled kits contain a stannous salt, which acts as a for ---------- the ----------
- Radiopharmaceuticals are administered for ---------- and ----------purposes.
- The intention with therapeutic radiopharmaceuticals is to use the radiation emitted to---------- within the body.
- Diagnostic radionuclides having a physical $t_{½}$ of ---------- are used.
- The therapeutic radio pharmaceuticals normally contain a radio nuclide that decays by emitting a ---------- particle.
- Radiopharmaceuticals are administered either by----------, by---------- or by----------.
- The majority of radiopharmaceuticals, whether for therapeutic or diagnostic purposes, are administered ----------.
- Operator protection can be enhanced by the incorporation of ----------in the laminar flow cabinet.
- In hospital radiopharmacy departments the radionuclide technetium-99m is the most widely used because of its almost----------.

Q.2. Write the correct term for each of the following statements: (15 marks)

- [ ] are used to obtain information about the patient, for example, the structure or position of an organ within the body or how well it is functioning.
- [ ] A single, sterile, freeze-dried rubber-capped vial which contains all the necessary non-radioactive ingredients to prepare a specific radiopharmaceutical.
- [ ] The intravenous injection of labeled particles of heat-denatured human serum albumin.
- [ ] A term used to indicate how close a measurement of a quantity is to its true value.
- [ ] The fraction of atoms of a radioactive element decaying per unit time. It is expressed as $\lambda = 0.693 / t_{½}$ where $t_{½}$ is the half-life of the radionuclide.
- [ ] A system using a scintillation detector which enables the distribution of the gamma emitting radionuclide within the patient body to be imaged.
- [ ] The thickness of any absorbing material required to reduce the intensity or exposure of a radiation beam to one half of the initial value when placed in the path of the beam.
- [ ] A device in which a short-lived daughter is separated chemically and periodically from a long-lived parent adsorbed on adsorbent material.
- [ ] The time by which one half of an administered dosage of a substance is eliminated by biological processes such as urinary and fecal excretion

- [ ] Nuclides have the same number of neutrons ill the nucleus.
- [ ] The total number of protons and neutrons in the nucleus of a nuclide.
- [ ] The period of time a radionuclide exists on the average before disintegration. It is related to the half-life and decay constant by $t = 1/\lambda = 1.44\ t_{½}$
- [ ] N uclides having the same mass number, that is, the same total number of neutrons and protons. Examples are $^{57}Fe_{26}$ and $_{57}\ CO_{27}$.
- [ ] Nuclides having the same atomic number, that is, the same number of protons in the nucleus. Examples are $^{14}C_6$ and $^{12}C_6$.
- [ ] A mode of decay of a proton-rich radionuclide in which an orbital electron is captured by the nucleus, accompanied by emission of a neutrino and characteristic x rays

Q.3. According to the following table write thr required parameters of Radionuclide used in radiopharmaceuticals: (4 marks)

Parameter	Technetium 99m	Iodine-123	Phosphours-32	Iodine-131
Emitted radiation				
Half-life				
Radiopharmacy use				

Q.4 According to the following table write the main properties of Radiations used in radiopharmaceuticals: (3 marks)

Property	Gamma	Alpha	Beta
Mass			
Charge			
Ionization			
Penetration			
Safety			

Q.5. Donate the True statement [T] and the False one [F] with correction: (4 marks)

[ ]Gamma rays are emitted pure separately from alpha or beta particles.

[ ] The radiopharmaceuticals of therapeutic purpose are mostly administrered intravenously.

[ ] Structural studies of kidney are performed with dimercaptosuccinic acid which is labeled with technetium.

[ ] Kits are prepared performed by using aseptic technique within Vertical laminar flow cabinets.

24

Part 2 (24 marks)

I. Answer the following questions: (6 marks)

1. List the main components of commercially available kits for radioimmunoassay.

---

2. Briefly discuss the use of radiopharmaceuticals in determining the gallbladder ejection fraction.

---

3. Draw a schematic representation of a normal renogram. Explain the main phases of the renogram.

---

4. List FOUR different therapeutic uses of radiopharmaceuticals.

---

5. Briefly describe the use of avidin/biotin interaction in tumor targeting of radiopharmaceuticals.

---

6. Discuss TWO different uses of antisense oligonucleotides.

II. Give reason(s) to rationalize each of the following sentences: (5 marks)

1. Radioimmunoassay is both specific and sensitive.

---

2. The size of colloid particles is important in imaging the reticuloendothelial system.

---

3. L-phenylalanine is used with ^{18}F-fluorodopa for imaging of neurodegenerative diseases.

---

4. Molecular imaging of DNA is more difficult than that of mRNA.

---

5. The position of a patient must be supine during lung perfusion imaging using ^{99m}Tc-MAA.

III. Write the scientific expression described by each of the following sentences: (4 marks)

1. A non-imaging test that indicates normal or abnormal absorption of vitamin B_{12}.
2. A procedure in which serial images are obtained with a scintillation camera following IV injection of 99^{rn}Tc-Iabeled IDA derivatives.
3. A pharmacological intervention that enhances the sphincter of Oddi tone and promotes gallbladder filling.
4. A radiopharmaceutical that is entirely filtered by glomeruli in the kidneys following IV administration. It can be used for the measurement of glomerular filtration rate.
5. The activity versus time curve which demonstrate the passage of a radiopharmaceutical through the kidneys.
6. A type of lung imaging that is based on the trapping of large particles in the capillary bed of the lungs.
7. A type of radiation therapy of cancer in which a radioactive material is placed in the body near cancer cells.
8. A disease that is characterized by an increased red blood cell mass. It is frequently associated with bone marrow hyperactivity.

Answer Sheet

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

IV. Choose the most appropriate answer in each of the following (5 marks)

1. Which of the following is NOT TRUE regarding radioimmunoassay?

A.The bound and free antigens can be separated by a second antibody added to precipitate bound antigen.
B.The antibody is present in high amount to bind all labeled and unlabeled antigens.
C. The ratio of bound to free antigen is a function of the concentration of unlabeled antigen in the mixture.
D. The amount of bound antigen is inversely proportional to the quantity of unlabeled antigen.

2. The normal values of 24-hr urinary excretion of vitamin B12 are in the range of -----

A. 5-20% B. 10-40 %
C. 30-50 % D. 40-60 %

3. The following radiopharmaceuticals are used for hepatobiliary imaging EXCEPT

A. ^{99rn}Tc-mebrofenin B. ^{99rn}Tc-DISIDA
C. ^{99rn}Tc-Iabeled IDA derivative D. ^{67}Ga-gallium citrate

4. The peak gallbladder activity occurs by ------- post-injection of Hepatolite

A. 30-60 min B. 60-120 min
C. 90-120 min D. 120-150 min

5. Diffusible tracers that cross the BBB include the following EXCEPT

A. ^{99rn}Tc-HMPAO B. ^{99rn}Tc-ECD
C. ^{18}F-FDG D. $^{99rn}TcO_4$

6. The normal value of the renal transit time for adults is about ----------

A. 1-3 min B. 3-5 min
C. 5-10 min D. 15-30 min

7. The following radiopharmaceuticals are used for treatment of bone pain EXCEPT

A. ^{90}Y-Ibritumomab Tiuxetan B. ^{153}Sm-EDTMP
C. ^{89}Sr-SrC12 D. ^{32}P-orthophosphate

8. IV injection of furosemide after peak renal radioactivity is reached will alleviate: ----

A. Mechanical obstruction B. Functional obstruction .
C. Both mechanical and functional obstruction D. None of the above

9. The usual size of ^{99m}Tc-MAA used for lung perfusion imaging is about ----------

A. 0.1-1 µm B. 1-10 µm
C. 10-90 µm D. 100-300 µm

10. Ventilation studies of the lungs are used to diagnose the following EXCEPT

A. Airway obstruction B. Emphysema
C. Pulmonary embolism D. Chronic bronchitis

Answer Sheet	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

V. Denote (T) for true sentences and (F) for the false ones: (4 marks)

1. ^{125}I -Iabeled serum albumin method is one of the most common methods of measuring red blood cell survival time.	
2. The normal values of RBCs survival half-time range between 10 and 25 days	
3. Hydrophilic radiopharmaceuticals are generally used to evaluate the functional status of the hepatocytes and the patency of the biliary duct	
4. ^{99m}Tc-IDA derivatives are extensively metabolized by the liver	
5. ^{131}I-Hippuran is currently the preferable agent for renal function studies	
6. Renal arterial stenosis usually shortens the renal transit time	
7. In the case of pulmonary embolism, a mismatch V/Q of normal ventilation and poor perfusion is typically observed	
8. Patients with hyperthyroidism who are treated with ^{131}I are advised to delay conception for at least 6 months after	

END of Questions – GOOD LUCK

الامتحان الشفوى عقب الامتحان النظرى مباشرة بقسم الصيدلانيات بمبنى بب الدور الثانى

Assiut University	
Faculty of Pharmacy	Department: Industrial Pharmacy
(Elective Course) Pharmaceutical Manufacturing	Instructors: Staff Members of the Department
Date: 19/1/2011	Time Allowed:2 hrs Total Marks: 60 Marks
Final Exam	

Answer the Following questions:

Question I: ..... (7 marks)

In your answer sheets, write the number of each sentence followed by the letter "T" for the correct and "F" for the false one:

1- For preparation of drugs under aseptic conditions, the product, container, and closure should have a low bioburden and can withstand high temperature.
2- HEP A filter is considered the main unit in the sterile area, it helps in sterilization of the components of the product aimed to be sterile.
3- Clean room is defined as "a room in which the concentration of airborne particles and bacteria is controlled to specified limits"
4- Air lock doors consists oftwo airtight doors in series which do not open simultaneously. It permits the passage of objects only into a clean room while preventing passage of personnel to keep the area clean.
5- There are so many sources of contamination during manufacturing of sterile products. Workers are the main source of contamination.
6- After construction of aseptic area, the HEPA filter has to be validated only once after which the manufacturer can get the licence for production and no need for validation again
7- All filters, and other components of the sterile area are accessible for maintenance and replacement from outside the clean area.
8- HEP A filter consists of a continuous sheet of filtration material, pleated, with a corrugated separators. Asbestos is the best material of construction of that filter.
9- The more particles in the air surrounding the product the more likely the product will be contaminated with those pmiicles.
10- Endotoxins are a pyrogenic fever-inducing substance present in the bacterial cell wall. Boiling liquids help keeping products free from them.
11- Is this fact true?? "The skin is home to a virtual zoo of bacteria".
12- For personal hygiene in aseptic area, frequent bathing and shampooing, avoid getting sunburned, but leave cosmetics such as face powder, hair sprays, perfumes and aftershave.
13- As operator activities increase in an aseptic processing operation, the risk to finished product sterility also increases.
14- Either HEP A filter or ULPA filter is the main unit in aseptic area. However, HEP A is more efficient than ULP A filter.

Question II: ..... (7 marks)

Choose the most appropriate answer for the following (Write the number of the sentence and the selected letter only in your answer booklet):

(1) Capsules offer the following unique advantages as a dosage form EXCEPT:
- a- get Products to Market Faster
- b- better Suited for Cytotoxic/High Potency Drugs than Tablets
- c- improve Stability with Sensitive Drug Compounds
- d- ideal for Modified-release Formulations
- e- not preferred by patients and not Improve Patient Compliance

(2) Capsules are manufactured, filled and sealed in one operation EXCEPT:
- a. HGC
- b. SGC
- c. SEG
- d. Softgels
- e. SEC

(3) Bloom Strength is
- a- a measure of gel viscosity.
- b- determined by preparing a standard gel (6.66% w/v) and measuring it at 10°C.
- c- defined as the load in kilograms required to push a standard plunger 4mm into the gel.
- d- of low value (150 g) ofthe gelatin used in hard capsule manufacture
- e- all of the above.

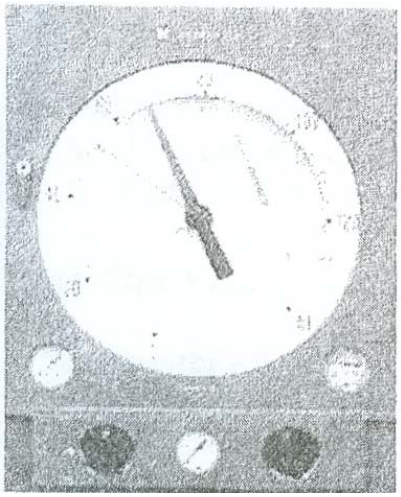
(4) Dyes, opacifants, and any needed water are added to the gelatin in the feed tanks to complete the gelatin preparation procedure. What is the number of this step in manufacturing of HGC

a- 5 b- 4 c- 3 d- 2 e- 6

(5) Once drying of hard capsules is completed during manufacturing, the following steps will be done **EXCEPT**:
- a- the gelatin is gravity fed to specially engineered Dipper section
- b- the Pin Bars enter the table section which positions the capsule halves for stripping from the Pins in the Automatic section.
- c- the capsule bodies and caps are joined automatically in the joiner blocks.
- d- capsule quality is monitored throughout the production process
- e- capsules are sorted and visually inspected on specially designed Inspection Stations.

(6) The walls of HGC and SGC are:
- a- soft and firm respectively
- b- rigid and flexible, respectively.
- c- flexible and rigid, respectively.
- d- containing large and small proportion of a plasticizer, respectively
- e- all of the above

(7) The following equipment is used to control:



a- size, moisture content, single wall thickness, and colour of HGC.
b- Sorting and visual inspection of HGC.
c- Pushing capsules onto a conveyer belt which canies them out to a container.
d- humidity, temperature, and gelatin viscosity throughout the production process of capsules.
e- Gelatin rigidity

(8) For the Extemporaneous filling methods of HGC, the following equipment is used:
a- type 8 capsule filling machine (Parke-Davis)
b- MG-2, automatic capsule filling machine (Supermatic) c- Zanasi automatic filling machine, Model AZ-60.
d- Scherer soft elastic capsule machine (Scherer)
e- Hand-operated capsule ma0hine Model 300 (Chemi-Pharm)

(9) HGC can be filled by
a- Powder b- Granules
c- Pellets d- Tablets
e- All of the above

(10) Process aids: in hard gelatin capsule manufacture, the US/NF describes the use of
a- gelatin containing not more than 0.15% w/w of sodium lauryl sulphate (SLS)
b- Iron oxides
c- Titanium dioxide
d- Propylene glycol
e- Erythrosine

Question III ..... (7 marks)

A. Write an account on the purposes and importance of stability testing of pharmaceutical dosage forms.
B. What is the basis of selection of batches for stability studies?
C. Draw the decision flow chart for the photostability testing of drug products

Question IV..... (7 marks)

A. How can you achieve pulmonary targeting of drugs?
B. Write short notes on drug targeting to the eye, ..

Question V.....(7 marks)

A.Give the scientific term of the following statements:

1- The number of phospholipid bilayers of liposomal vesicles.
2- Liposomes surface modified with hydrophilic polymers such as polyethylene glycol.

B. Advantages of liposomes in the targeted delivery of chemotherapeutic drugs.
C. Using illustration, give a brief description ofthe different classes of liposomal vesicles.

Question VI..... (7 marks)

Write short notes on each of the following:

A. Moist heat sterilization.
B. Uses of biological and chemical indicators in sterilization process.

Question VII..... (7 marks)

1- Define each of the flowing terms and explain the importance of its determination in drugs preformulation studies:

A. Partition coeffic.ient B. Dissociation constant C. flowability

2- Answer the following:

A. What is meant by non-sink conditions in the dissolution studies?
B. Define the intrinsic dissolution rate. Explain with a simple diagram how it is determined.
C. Enumerate four ideas to avoid or minimize hydrolytic degradation in the formulation of drug products
D. Draw a scheme to identify the compatibility of excipients using DSC and tJ.c.

Question VIII.....(11 marks)

A-What are the responsibilities of the quality assurance unit.
B- What is meant by maintenance of equipment, mention its types?
C- Mention the ideal properties and types of nanoparticles.

Wishes

Assiut University
Faculty of Pharmacy
Department of Industrial Pharmacy

Final Examination on Industrial Pharmacy I (PHI-522)

Date: January 22, 2011 **Time Allowed: 2 Hours**

General Instructions:

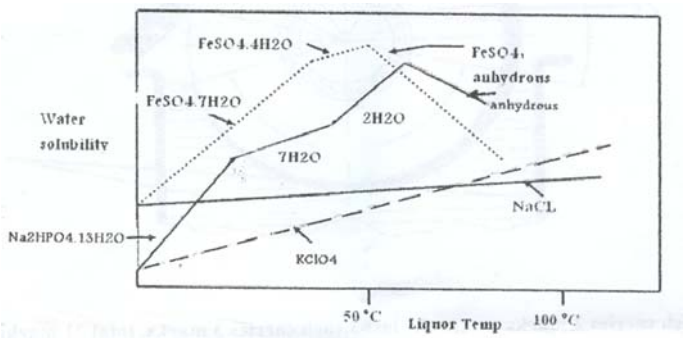
1. *Explain your answer with simple diagrams and/or equations whenever possible*
2. *This examination consists of (2 pages)*
3. *This examination carries 70/150 marks*

Answer the following Questions:

Q.1. ----------(10 marks)

a. Draw an annotated diagram to show the Miers's theory on crystallization.

b. Comment on the following curves with mention of the method of supersaturation employed for crystallization for each salt.



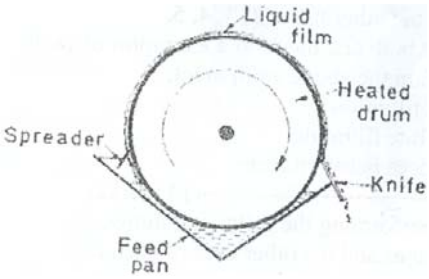
c.What is the reasons of crystal caking and the how it is prevented?

Q.2. ----------(11 marks)

a. Define each of equilibrium moisture content of a solid and the relative humidity of air. What is the relationship between these two values at the same temperature?

b. i. Name the following equipment ii. How it operates

iii. Mention two of its advantages and one of its disadvantages



c. Enumerate the applications of freeze drying and describe the characteristics of the product of this technique

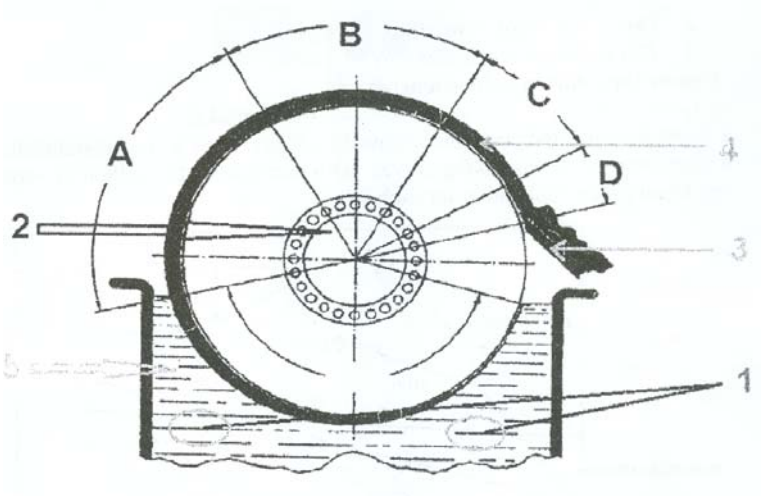
Q.3. ----------(14 marks)

a. Enumerate the factors affecting the selection of the proper material of construction of a certain equipment

b. Write a short note on the applications of liquid-liquid extraction

c. Draw a neat annotated sketch of the Shiebel column with mention of the fuction of each of its parts

Q.4. With reference to the figure shown, answer the following questions:



(each carries 2 marks except the last 3, each carries 3 marks, total 21 marks)

A- Give the name of the equipment.

B- Is it batch or continuous? What is the difference between each term

C- What are the main functions of that equipment? Assign the best one

D- Give the name of each zone indicated by the letters A,B,C,D.

E- Is it vacuum or pressure equipment? What are the limitations of each.

F- If the permeability of the cake layer is low ...How can you solve that problem.

G- Suggest the name of the part that should be inserted in the position numbered (1). Write the name of the other parts 2,3,4,5.

H- "Filter media- Filter aid" ...Define both and mention 2 examples of each.

I- Select the type of filtration adopted in the above equipment:

1- Clarification 2- Cake filtration

3- Depth filtration or 4- Absolute filtration

Define each type showing the differences between them.

Q.5. ----------(14 marks)

Suggest the equipment suitable for performing the following duties.

Write the advantages, diadvantages and the other uses of each of these equipment

a. Evaporation of brine solution b. condensation of chloroform

GOOD LUCK

Assiut University
Faculty of Pharmacy
Jan. 2011

4th year exam.
First Aid
Time allowed: 2 hours

First Aid Exam

Answer the following question:

i- Define the following: (16 mark)

1- First aid.

2- Fainting.

3- Convulsion.

4- over the counter drugs (otc).

5- Shock.

6- food drug interactions.

7- Poisoning.

8- wound.

ii- Write an account on : (24 mark)

1- Basic life support.

2- aims of the first aid

3- Grape fruit interaction with certain drugs.

4- first aid kit

5-Factors affecting wound healing.

6- Suture materials.

iii- Write the first aid measures of: (10 mark)

1- Burns.

2- Anaphylactic shock.

3- Hemorrhage.

Good luck

ASSIUT UNIVERSITY
FACULTY OF PHARMACY
PHARM. ANAL. CHEM. DEPT.

2nd SEMESTER
PRACTICAL SHEET
MAY 17,2011
TIME ALLOWED: 1/2 HOUR

رقم الطالب:

اسم الطالب:

A-Choose the correct answer from (a), (b), (c) or (d) (3 Marks)

1)Assay of ascorbic acid is based on:
(a) Spectroph.otometric determination at 275 nm
(b) lodometric titration with standard NH4SCN using starch as indicator.
(c) lodimetric titration with standard iodine using starch as indicator.
(d) Precipitimetric titration with standard $AgNO_3$ using ferric alum as indicator.

2) Assay of zinc sulphate in eye drops is based on:
(a) Complexometric titration with standard EDTA using Erio-T as indicator, at pH=10.
(b) Spectrophotometric determination at 525 nm after reaction with EDTA.
(c) Complexometric titration with standard EDTA using Erio-T as indicator at pH=12.
(d) Iodimetric titration with standard iodine using starch as indicator.

3) Assay of indomethacin in capsules is based on:
(a) Acid-base titration with standard HCl using phenolphthalein as indicator.
(b) lodimetric titration with standard iodine using starch as indicator.
(c) Acid-base titration with standard NaOH using phenolphthalein as indicator.
(d) None of the above

4) Assay of ferrous carbonate in syrup is based on:
(a) Precipitimetric titration with standard $AgNO_3$ using ferric alum as indicator.
(b) Spectrophotometric determination at 445 nm.
(c) Redox titration 'with standard KMN04.
(d) Redox titration with stan'dard KMN04.using diphenyl amine as indicator.

5) Assay of ciprofloxacin in tablets is based on:
(a) Spectrophotometric determination at 345 nm.
(b) Spectrofluorimetric determination at 345 nm after excitation at 445 nm.
(c) Colourimetric determination at 445 nm.
(d) Spectrofluorimetric determination at 445 nm after excitation at 345 nm.

6) In the assay of chloramphenicol in capsules, if the absorbance of sample solutions, were 545, 549, 565 and 557 at 275 nm while the absorbance of the reference standard was 574 at the same wavelength.The percentage of chloramphenicol in the capsules is:

(a) 93.7% (b) 96.5%

(c) 98.4 % (d) none of the above.

B- Briefly discuss:

1. Principle of the assay of the theophylline in Quibron tablets

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2. Principle of the assay of calcium gluconate in ampoules.

Directions: Please fill in marks like this:● Not like this:○ ⊗

ANSWER SHEET **D**

Subject: Final Exam of Bioassay – for Fourth year Pharmacy students.
Date : 8 / 6 /2011
Secret Number :

Hundreds:	0	1	2	3	4	5	6	7	8	9
Tens:	0	1	2	3	4	5	6	7	8	9
units:	0	1	2	3	4	5	6	7	8	9

تنبيه هام: على الطلاب الرجاء عدم كتابة أي اسم أو أي رقم أو علامة في هذا الجزء

1	A	B	C	D	1	T	F
2	A	B	C	D	2	T	F
3	A	B	C	D	3	T	F
4	A	B	C	D	4	T	F
5	A	B	C	D	5	T	F
6	A	B	C	D	6	T	F
7	A	B	C	D	7	T	F
8	A	B	C	D	8	T	F
9	A	B	C	D	9	T	F
10	A	B	C	D	10	T	F
11	A	B	C	D	11	T	F
12	A	B	C	D	12	T	F
13	A	B	C	D	13	T	F
14	A	B	C	D	14	T	F
15	A	B	C	D	15	T	F
16	A	B	C	D	16	T	F
17	A	B	C	D	17	T	F
18	A	B	C	D	18	T	F
19	A	B	C	D	19	T	F
20	A	B	C	D	20	T	F

In the answer sheet. shade the most appropriate answer for each of the following MCQs:

(One mark for each question)

1-Drawbacks of a biological assay include all of the following EXCEPT:

A)Bioassay methods are more tedious and troublesome

B)They need specific training for the proper care and handling of animals

C) Variations in results are more common and significant due to "biological variations"

D)It needs a few number of animals

2-A biologically active agent is assayed biologically in all of the following cases EXCEPT:

A)If its chemical nature is known

B)If it cannot be obtained in a pure form suitable for chemical assay

C)If it is difficult to assay it chemically

D)If the biological method gives more accurate, specific & sensitive results

3- Concerning writhing method forinduction of pain, all of the following statements are CORRECT EXCEPT:

A)In this method, animals are LP. injected with an irritant substance

B)Either the number of writhing movements or the duration of writhing is determined

C)It is used mainly to detect opioid analgesic activity

D)Mice are usually used in this test

4-Concerning the paw pressure method for screening of CNS activity, all of the following statements are CORRECT EXCEPT:

A)Mechanical pressure is applied on the animal's tail by an artery clip

B)The weight pressure could be painful (l00-200gm)

C)The weight needed to cause the animal to respond is calculated

D)It is used to assess possible opioid analgesic effect

5- The following are considered spontaneous hostility tests EXCEPT:

A)Taming effect B)Group excitement test

C)Inhibition of induced aggressiveness D)Rotating rod test

6- Concerning the forced-swimming test for screening of antidepressants the following statements are <u>CORRECT EXCEPT:</u>

A)Only rats can be used

B)The animals are dropped into a glass tank which is half filled with water

C)The time from dropping the animal till it starts to swim is calculated

D)Antidepressants reduce this immobility in a dose-dependent manner

7-After puberty; hyperfunction of growth hormone leads to <u>ONE</u> of the following disorders:

A)Cretinism B)Dwarfism

C)Gigantism D)Acromegaly

8-Adrenocorticotropic hormone stimulates the synthesis and release of all of the following <u>EXCEPT:</u>

A)Epinephrine and norepinephrine B)Glucocorticoids

C)Aldosterone D)Adrenal androgens

9-Follicle stimulating hormone has the following actions <u>EXCEPT:</u>

A)It causes ripening of the Graffian follicles

B)It stimulates the secretion of progesterone

C)It is responsible for the development of seminiferous tubules

D) It is responsible for the maturation of spermatozoa

10-Somatostatin inhibits the release of all of the following <u>EXCEPT:</u>

A)Growth hormone B)Glucagon

C)Aldosterone D)Thyrotropin

II-Concerning the mechanism of action of oral contraceptives, all of the following are CORRECT EXCEPT:

A)Combined pills inhibit ovulation by suppressing gonadotropin release from the anterior pituitary gland

B)Progestins prevent ovulation through inhibition ofLH release

C)Progestins decrease the amount of cervical secretions, therefore, they impair sperm migration

D)Estrogen alone can inhibit ovulation but it causes profuse irregular bleeding

12-lndications of oral contraceptives include all of the following EXCEPT:

A)For management of endometriosis

B)In cases of dysmenorrhea or amenorrhea

C)To delay menstruation

D)For treatment of fibrocystic disease of the breast

13-Concerning bioassay of oxytocin, all of the following statements are INCORRECT EXCEPT:

A)It initiates milk secretion in the mammary glands of pseudopregnant rabbits

B)It stimulates milk ejection in lactating rabbits

C)Glycogen deposition method could be used versus a standard preparation

D)An increase in the body weight of normal rats is an easy method for its assay

14-ln the isolated rat uterus method for the assay of oxytocin, ONE the following is CORRECT:

A)Pregnant rats are used

B)Contractions of the uteri decrease as the concentration of oxytocin increases

C)The uterus is suspended in Kreb's physiological salt solution

D)Female rats are pretreated with stilbesterol to increase the sensitivity of the preparation

15-For the assay of vasopressin using the antidiuretic activity, all of the following are <u>TRUE EXCEPT:</u>

A)Rats should be fasted overnight

B)Each animal is given some water added to it some ethanol

C)Urine drops are collected overnight

D)Urine volume decreases as the concentration of vasopressin increases

16-<u>0NE</u> of the following methods is used for the assay of vasopressin:

A)Urinary electrolyte levels B)Capon's comb method

C)Pressor activity method D)Ascorbic acid depletion method

17-<u>0NE</u> of the following is a common side effect of first-generation HI antagonists:

A)Tachycardia B)Pulmonary hypertension.

C)Cholecystitis D)Sedation

18-Concerning the rat uterus preparation for the quantitative evaluation of serotonin, all of the following statements are <u>CORRECT EXCEPT:</u>

A)Serotonin causes contraction of rat uterine strip

B)The animal is injected S.C. with diethylstilbesterol prior to the experiment

C) Krebs' solution is used as the physiological salt solution

D)It is very sensitive to serotonin

19- Using the rat uterus preparation for the bioassay of prostaglandins, all of the following statements are <u>CORRECT EXCEPT:</u>

A)Uteri of non-pregnant females are used

B)$PGF_{2\alpha}$ relaxes the isolated rat uterus

C)The physiological salt solution should be aerated

D)The temperature is adjusted to 30°C

20- <u>ONE</u> of the following is the drug of choice for hypoparathyroidism:

A)Parathormone B)Calcium gluconate

C)Vitamin D D)Pamidronate

In the answer sheet, shade "T" for TRUE statements and "F" for FALSE ones:

(Half a mark for each question)

I-In the graded dose-response curve, the percentage of the response is plotted versus log dose

2- The use of a cross-over design allows testing of both the standard and unknown products on the same animals

3-A drug that has a steep slope must have a wide margin of safety

4- The first line of treatment of hypercalcemia is I. V phosphate

5- Any form of vitamin D is useful in the treatment of renal rickets

6-Alendronate can be used for the treatment of Paget's disease

7-Secretion of parathyroid hormone is reduced by elevated calcium and reduced phosphate plasma levels

8-Calcifediol, the most active form of vitamin D, is synthesized in the liver

9- D-tubocuraraine activates the release of histamine by increasing the intracellular Ca^{2}+ concentration

10- Guinea-pig ileum method is more sensitive than Guinea-pig tracheal chain method in bioassay of histamine

11-Growth hormone stimulates lipolysis and increases plasma free fatty acid levels

12-Cabergoline is a more effective and better tolerated drug than leuprolide

13-Oxytocin is indicated in cases of post-pactum bleeding

14- To enhance uterine development in immature rabbits, progesterone is injected daily for 6 consecutive days

15-Clomiphene citrate can stimulate ovulation

16-Estrogen increases the activity of endometrial carbonic anhydrase enzyme

17-Estrogen increases the uterine weight of young ovarictomized rats

18- Behavioral tests are specific and reliable for screening of the anxiolytic activity of a new agent.

19- Both neuroleptic and anxiolytic drugs are screened for their hypothermic action

20-Extensive seizure latency measures the time at which the hind limb of the mouse passes from the flexor to the extensor position after an electric shock

ASSIUT UNIVERSITY

FACULTY OF MEDICINE Date: 8/ 6/ 2011

DEPARTMENT OF PHARMACOLOGY Time Allowed: 3 hrs

FINAL EXAM OF BIOASSAY
FOR FOURTH YEAR PHARMACY STUDENTS

Write a brief account of each of the following:

(10 Marks for each question)

I-A) Screening of antidiabetic activity

B) Mechanism of action, therapeutic uses, adverse effects and precautions during thionamide therapy

2-A) Four methods to induce hypertension in experimental animals

B) Use of three cardiovascular tests for screening of adrenergic agonistic activity of a new compound

3-A) Therapeutic uses and adverse effects of insulin

B) Pharmacology of corticosteroid antagonists

4-A) Indications, adverse reactions and precautions during clomiphene therapy

B) Therapeutic uses of serotonin agonists and antagonists

GOOD LUCK .....

Faculty of Pharmacy

Department of Industrial Pharmacy

Final Examination on Industrial Pharmacy 2 (PHT543)

A/Y2010/2011-Second Semester

Date: June 11,2011 Time Allowed: 2Hours

-درجة هذا الامتحان 150/70

-وضح اجابتك بالرسم أو المعادلات كلما أمكن ذلك

-يتكون هذا الامتحان من 10 أسئلة فى 4 صفحات (ورقتان). تأكد من عدم تكرار اية صفحة

QI. Answer the following questions: (4 Marks)

1. Enumerate two forms of ordered mixtures and two cases of ordered mixture prevalence
2. Draw a simple diagram to show the effect of mixing time on the degree of mixing
3. How the vortex is formed in liquid-liquid mixing? Mention two disadvantages of vortex formation.
4. In mixing, mention 2 cases in which the shear force is required and 2 other cases in which this force is not required and may be even disadvantageous

Q2. Answer the questions on Figures A & B: (4 Marks)

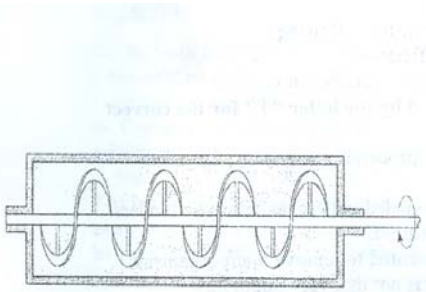


Fig. A

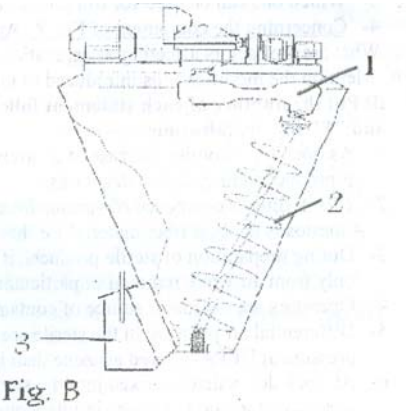


Fig. B

a. Name both equipment b. Annotate 1,2&3 on Fig. B

c. What is the main problem in A and how to overcome this problem

d. Mention two advantages of B over A

Q3. Write very briefly on: (10 Mark)

a. Advantages and disadvantages of size reduction in pharmacy

b. "Fluid energy mill isthe machine of choice for size reduction of thermolabile and explosive materials" comment on this statement

c. Draw a neat sketch for the fluid energy mill from the two views

Q4. (10 Marks)

a.Write on the significance of particle size analysis in pharmacy

b.Draw a neat diagram for the Coulter Counter

Q5. **(10 Marks)**

A) Look at the following figures and answer the questions which follow:

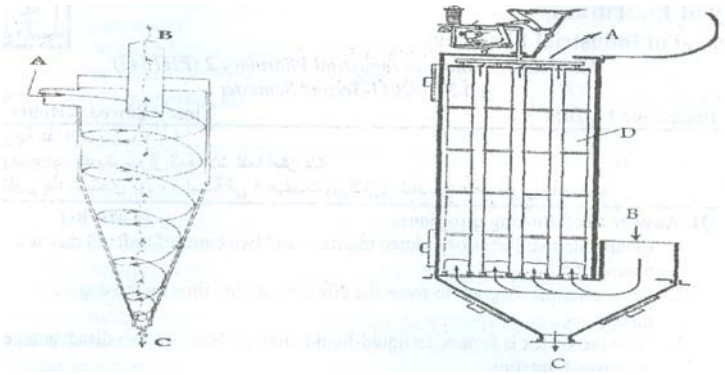


Figure I Figure II

1- Write the name of each equipment in Fig. I and Fig. II
2- Nominate both equipments according to the letters shown.
3- Which one can be used for :filtration of air?
4- Concerning the equipment of **Fig. I** : Answer the following:

a.What are the.factors affecting its separation efficiency?
b. Mention the modifications introduced to improve its efficiency.

B) Put the number of each statement followed by the letter "T" for the correct and "F" for the false one:

1- As operator activities increase in an aseptic processing operation, the risk of product contamination decreases.
2- HEPA filter is_composed of various fibers bonded with resin or acrylic binders. Asbestos is the best fiber material for that purpose.
3- During preparation of sterile products, it essential to remove microorganisms only from air while removal of particulates is not that very important.
4- Operators are the major source of contamination in sterile area.
5- Differential air pressure in the sterile are means that we have to keep higher pressure at HEPA-filtered air zone thim in buffer room outward.
6- Air lock doors that are fixed into the sterile area consists of two airtight doors in series which do not open simultaneously.

Q5. Write a Short note on each of the following: (8 Marks)

a. Important considerations established to minimize the hazards of cross contamination of the drug product.
b. Minimum non-sterile and aspect requirements for personnel attired for task being performed in GMP.

Q6. Choose the most appropriate answer for the following (Write the number of the sentence and the selected letter only in your answer booklet): (8 Marks)

1- Free-flowing pharmaceutical powders must be used because:

a-Uniform feed from hoppers into the feed ofta'bletting or capsule-filling equipment.

b- Reproducible filling of tablet dies and capsule dosators, which does not improve weight uniformity.
c-Uniform powder flow can result in excess entrapped air within powders, and may promote capping or lamination.
d-Uneven powder flow can result from excess fine particles in a powder, which increase particle-die-wall friction, causing lubrication problems, and increase dust contamination risks during powder transfer.
e- (a and d)

2- Adhesion and cohesion occur

a-between like surfaces and unlike surfaces, respectively
b- between unlike surfaces and like surfaces, respectively.
c- between unlike surfaces only such as powder and die wall.
d- between like surfaces only such as component particles of a bulk powder.
e- (b and c)

3- The forces which are responsible for preventing powder flow EXCEPT:

a-Gravitational force, b- cohesive forces,
c-Powders having a particle size less than 10 µm d-Adhesive forces
e- electrostatic charges of powder surface.

4- Free-flowing powder should have:

a-Hausner ratio greater than 1.6. b-Angle of repose greater than 50°
c- Hausner ratio at 1.2 and Carr Index at 12-16 d-Angle of repose close to 25°
e- (c and d)

5- The bulk density before tapping of powder is known as:

a-equilibrium density b- tapped bulk density
c- fluff or poured density d- consolidated bulk density e- (a and d)

6- Forces which are responsible for promoting powder flow EXCEPT:

a-Particle mass b- Angle of inclination of powder bed
c- Static head of powder d-Cohesive forces e- Large agglomerates

7-Which of the following particles have poorer flow properties:

a- a group of spheres has interparticle contact.
b- a group of particle flakes or dendritic particles.
c- dense particles d- particles larger than 250 µm. e- (b and c)

8- The most common methods for determining the static angle of repose can be classified on the basis of the following variables:

a-The height of the "funnel" through which the powder passes may be fixed relative to the base, or the height may be varied as the pile forms.
b-The base upon which the pile forms may be affixed diameter or the diameter of the powder cone may be allowed to vary as the pile forms.
c- The funnel height should be maintained approximately 2-4 cm from the top of the powder pile as it is being formed in order to minimize the impact of falling powder on the tip of the cone.
d- The diameter of the powder cone may be allowed to vary as the pile forms after withdrawing the cylinder. e- All of the above

Q.7. **(8Marks)**

a. "In tablets manufacture, binders can be added in two ways depending on the method of granulation". Explain this statement. Name one water soluble binder and another insoluble one.

b. How the choice of direct compression technique in tablet manufacture does depend upon the drug dose-size?

c. Draw an annotated diagram for the chilsonator.

Q8. Write the letter "T" for correct statements and "F" for false statements and correct false ones: (1.5 Marks):

1.Polymers used in enteric coating of tablets are insoluble in water.

2.Both sugar and press coating of tablets markedly increase tablet weight as compared with film coating.

3. The content uniformity method can be applied for evaluation of the uniformity of tablet dosage unit of non-coated tablets.

4. Correlation between in vitro dissolution and in vivo absorption of drugs from tablet dosage forms is best observed with Class III drugs (high solubility & low permeability).

5. The non-functional film coating of tablets (plain-coated tablets) may be intended to control the release rate of the drug from tablet.

6. Shelac is a common ingredient of the sub-coating layer in sugar coating of tablets.

Q9. Give reason(s) for the following statements (4 Marks):

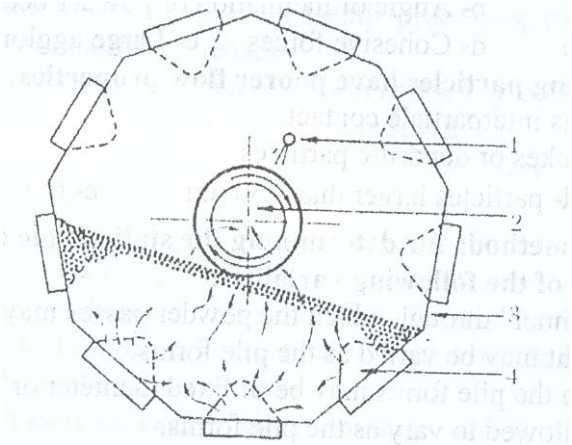
1.Hazards of organic solvents in tablet film coating

2.Addition of plasticizer in film coating of tablets.

3.Appearance of roughness (orange peel) on the surface of film coated tablets.

4.Press coating of tablets has certain advantages over sugar and film coating.

Q10. Name the equipment shown, mention its application and annotate the parts 1thru 4 (2.5Marks)



GOOD LUCK

Assiut University	
Faculty of Pharmacy	Department: Industrial Pharmacy
Elective Course *Pharmaceutical Technology (II)*	*Instructors: Staff members of the Department*
Date: 14/6/2011	Time Allowed: 2 Hours Total Marks: 60/100 Marks

يتكون هذا الامتحان من (9) اسئلة على اربع صفحات. تأكد من عدم تكرار أية صفحة.

Question I: (7 Marks)

1- Mention four bases for the design of the formal stability studies of the drug products.

2- What is meant by significant change in the stability studies of pharmaceutical products?

3- Why screening excipients for compatibility in stability studies?

Question II: (7 Marks)

Write what do you know about each of the following:

a) Characteristics of ideal targetable drug delivery system.

b) Colonic targeting of drugs.

Question III: (7 Marks)

A) Give reason for the following statements:

1- Liposomes are ideal carriers for hydrophilic, hydrophobic and amphiphilic drugs.

2- Circulation time of liposomes in blood is markedly prolonged by surface coating with polyethylene glycol (PEG).

3-Liposomes can overcome multidrug resistance developed against anticancer chemotherapy.

4- Liposomes are able to reduce drug toxicity and increase drug efficacy.

(B) Briefly explain different drug targeting mechanisms of liposomes to cancer tissues.

Question IV: (7 marks)

A) Give scientific term for each of the following:

1- A sterilization process adapted for product, container, and closure that have low bioburden·and can withstand high temperature.

2- The pattern of air movement within the clean room, ideally with uniform velocity, along parallel lines (vertical or horizontal) with minimum eddies.

3 - A room· in which the concentration of airborne particles is controlled to specified limits.

4- A special cabinet that can be accessed through glove ports/half suits sealed in the walls. Components can introduced through pass-through chambers.

5- A substance present in the bacterial cell wall that shouldn't contaminate parenterals because they might cause adverse effect that range from fever to death.

6- A uniform that personnel should put on before entering into the sterile area.

7- It is a part of quality assurance which ensures that products are produced consistently and controlled to the quality appropriate to their intended use.

B) Put the number of each sentence followed by the letter "T" for the correct and "F" for

the false one:

1- HEP A filter is considered the main unit in clean room, it helps in sterilization of unstable products that can't withstand terminal sterilization.
2- Air lock doors consists of two airtight doors in series which do not open simultaneously. It permits the passage of objects only into the cleanroom while preventing passage of workers as they are the main source of contaminationm.
3- All filters, and other components of the sterile area are accessible for maintenance and replacement from outside the clean area.
4- Endotoxins are a pyrogenic fever inducing substance present in the bacterial cell wall. Boiling liquids help keeping products free from them.
5- Is this fact true?? "The skin is home to a virtual zoo of bacteria".
6- For personal hygiene in aseptic area, frequent bathing and shampooing, avoid getting sunburned, while it is permitted to leave cosmetics such as face powder, hair sprays, perfumes and aftershave.
7- Either HEPA filter or ULPA filter is the main unit in aseptic area. However, HEPA is more efficient than ULP A filter.

Question V: (7 Marks)

Put the number of each sentence followed by the letter "T" for the correct and "F" for the false one:

1- Direct contact between gas & microbial cells is essential in sterilization by ethylene oxide in presence of organisms likely dried protein.
2- Moist heat sterilization is used for unaqueous preparations and wettable materials.
3- Sterilization by dry heat should include air circulation within the chamber and the maintenance of a negative pressure to prevent entry of non-sterile air.
4- The filter should be with a pore size 0.22μ or less in sterilization by filtration.
5- Biological indicators should be used with ethylene oxide and validation of sterilization.
6- The relation between temperature of vapour and pressure is important in moist heat sterilization.
7 - The filter used in sterilization should affect the solution to be filtered by absorption or reaction.

Question VI: (7 Marks)

1- Compare between compressibility and compactibility with regards to:
   a) Definition.
   b) Evaluation. .
2- " Dissolution of a solid drug can be described by Noyes- Whitney equation" Comment on this statement with reference to sink and non-sink conditions.

Question VII: (7 Marks)

Choose the most appropriate answer for the following (Write the number of the sentence. and the selected letter only in your answer booklet):

(1)-Capsules offer the following unique advantages EXCEPT:

a - Get Products to Market Faster
b- Better Suited for Cytotoxic/High Potency Drugs than Tablets
c- Improve Stability with Sensitive Drug Compounds
d- Not preferred by patients and not Improve Patient Compliance
e- Ideal for Modified-release Formulations.

(2)-They are manufactured, filled and sealed· in one operation EXCEPT:

a. SGC b. HGC
c. SEG d. Softgels e. SEC

(3)-Bloom Strength is

a- A measure of gel viscosity.
b- Determined by preparing a standard gel (6.66% w/v) and measuring it at 10°C.
c- Defined as the load in kilograms required to push a standard plunger 4mm into the gel.
d- Of low value (150 g) of the gelatin used in softgels manufacture
e- (b + d)

(4)-Dyes, opacifants, and any needed water are added to the gelatin in the feed tanks to complete the gelatin preparation procedure.
What is the number of this step in manufacturing of HGC

a- 2 b- 3 c- 4 d- 5 e- 6

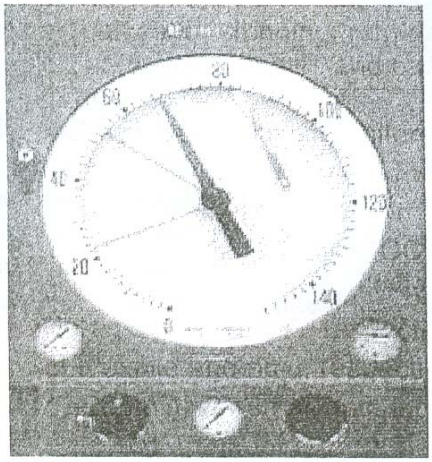
(5)-Once drying of hard capsules is completed during manufacturing, the following steps will be done <u>EXCEPT</u>:

a- The gelatin is gravity fed to specially engineered Dipper section
b- The Pin Bars enter the Table section which positions the capsule halves for stripping from the Pins in the Automatic section.
c-The capsule bodies and caps are joined automatically in the joiner blocks.
d- Capsule quality is monitored throughout the production process
e- Capsules are sorted and visually inspected on specially designed inspection stations.

(6)-The walls of SGC and HGC are:

a- Firm and soft, respectively
b- Rigid and flexible, respectively.
c- Flexible and rigid, respectively.
d- Containing small and large proportion of a plasticizer, respectively
e- Non of the above

(7)-The following equipment is used to control:



a- size, moisture content, single wall thickness, and colour of HGC.
b- Sorting and visual inspection of HGC.
c- Pushing capsules onto a conveyer belt which carries them out to a container.
d- humidity, temperature, and gelatin viscosity throughout the production process of capsules.
e- Gelatin rigidity

(B)-For the Extemporaneous filling methods of HGC, the following equipment is

used:

a- Type 8 capsule filling machine (Parke-Davis)
b- MG-2, automatic capsule filling machine (Supermatic)
c- Zanasi automatic filling machine, Model AZ-60.
d- Hand-operated capsule machine Model 300 (Chemi-Pharm)
e- Scherer soft elastic capsule machine (Scherer)

(9)-HGC can be filled by <u>EXCEPT</u>:

a- Powder b- Granules
c- Pellets d- Tablets
e- liquids

(10) Process aids: in hard gelatin capsule manufacture, the US/NF describes the use of

a- Gelatin containing not more than 0.15% w/w of sodium lauryl sulphate (SLS)
b- Iron oxides c- Titanium dioxide
d- Propylene glycol e- Erythrosine

Question VIII: (5.5 Marks)

1- How can you achieve separation in buildings according to the good laboratory practices principles.
2- What are the standard operating procedures (SOPs)?

Question IX: (5.5 Marks)

(A) <u>Give reason for the following statements:</u>

1. Polymeric nanoparticles are generally preferred over liposomes as drug carriers.
2. Nanocapsules with core-shell structure have certain advantages over polymeric nanospheres.
3. Nanocrystals of insoluble drugs result in marked improvement in drug bioavailability.
4. Gold nanoparticles can be applied for photothermal therapy of cancer.

(B) Give Short notes on each of the following:

1. Ideal properties of nanoparticles (5 properties)
2. Polymeric vesicles (Polymersomes).
3. Pharmaceutical applications of dendrimers.

GOOD LUCK

	Pharmacognosy Department Final Exam. of Fourth Year Students Alternative Medicine 14/6/2011 Time: 2 hrs	
Assiut University		Faculty of Pharmacy

Part I

1- Choose the suitable answer: (8 Marks)

1- The basic principle of homeopathy is :
a. Using toxic substances b. Low ofsimilars
c. Pathogenic diagnosis d. None of them

2- Proper nutrition for a case of angina should contain:
a. Coffee & chocolate b. Red meat & refined food
c. Plenty of fibers d. All of them

3- Body calcium level is affected by :
a. High caffeine intake b. Drinking tea with meals
c. Foods containing oxalic acid d. All of them

4- The following therapies are ihcluded in alternative medicine except:
a. Homeopathy b. Nutrition
c. Magnetic d. Cupping

5- Proper nutrition for a case of gout should contain:
a. Vit. C rich foods b. Vit. B3 rich foods
c. gamma-linolenic acid rich foods d. (a &c)

6- Homeopathic treatment for·a case of anxiety is:
a. Argentum nitricum&gelsemium b. Silica & sulphur
c. Chamomile & colocynthis d. Arsenicum &podophyllum

7 - Water is essential to body health, because it :
a. Regulates body temperature b. Remove body wastes
c. Transport nutrients d. All of them

8- Cases could be treated with cupping are:
a. Headache &back pain b. Rheumatic diseases
c. Insomnia d. All of them

أ.د. عفاف محمد عبد الباقى أ.د. هناء محمد سيد

الامتحان الشفهى عقب الامتحان النظرى مباشرة بالقسم

9- The following are mind-body medicines except:

a. Homeopathy
b. Hypnotherapy
c. Music therapy
d. Art therapy

10- Homeopathic remedy bottle is 1/100 if it's label bears:
a. Letter X
b. Letter C
c. Letter Q
d. Letter D

11- Abnormal parathyroid function results in :
a. Vit. D deficiency
b. Vit. C deficiency
c. Calcium deficiency
d. Iron deficiency

12- The following supplements are recommended for PMS except:
a. Soy isoflavones
b. Black cohosh
c. Foenugreek
d. D-glucarate

13- Dietary fibers are recommended in :
a. Weight management
b. Cardiovascular diseases
c. Diabetes mellitus
d. All of them

14- Probiotics are available in :
a. Yogurt
b. Red meat
c. Cranberry
d. Promelain

15- The following are rich in poly phenols except:
a. Green tea
b. Grape seeds
c. Cabbage
d. Citrus fruits

16- The following are dietary antioxidants except:
a. Lycopene
b. Coenzyme Q
c. Red meat
d. Evening primrose

II- Give reason for each of the following: (10 Marks)

1- Pregnant women must receive folic acid supplements.
.....
.....
.....

2- Balanced diet must contain omega 3 fatty acids.
.....
.....
.....

3- Red meat can aggravate chronic back pain.

.....
.....
.....

4-Hydrotherapy is useful to relief pain.

.....
.....
.....

5- Wearing of copper bracelets in case of arthritis.

.....
.....
.....

III- Recommend the suitable dietary supplements for each of the following: **(6 Marks)**

1- Urinary problems:

.....
.....

2- Impaired liver function :

.....
.....

3-Improvement of brain function:

.....
.....

4- Diabetes mellitus:

.....
.....

IV - Complete the following statements **(6 Marks)**

1- Application of cold and hot water leads to

.....
.....

2- Cupping is contra indicated In case of .....

.....

3- Chronic diseases are defined as .....

.....

4- Essential fatty acids contain two important groups

.....
.....

Part II

I A- Write short notes on: .....(10 Marks)

1- Phytoestrogens and give three examples.

2- The effects of soya foods on men.

3- Differences between phytoestrogens and xenoestrogens.

4- Causes of Benign Prostatic Hyperplasia (BPH) and its herbal Remedies.

5- Glauxoma its types and remedies.

I-B-Put marks (√) for the correct statements and (X) for the fase

One .....(5 marks).

I-Cough suppressants used when the cough is wet.

2-Caffeine is a potent CNS depressant.

3-Atropine is contraindicated in patients predisposed to glaucoma.

4-Diet with low of saturated fatty acids prevent the hypercholester- olemia.

5-Khelline used in treatment of angina pectoris.

6-Capsicine decreases the level of serum cholesterol and prevents hair growth.

7-Castor oil used as drastic pergative in case of food poisoning.

8-Ginger considered as anti-fungal natural products.

9-Green tea used in treatment of constipation.

10-Ephedrine acts as bronchodilatore.

1	2	3	4	5	6	7	8	9	10

II-A-Answer the following questions

1-What are the couses, symptoms and herbal treatment of uterine

fibroids ..... (4 marks).

2-Why the following drugs used as CNS stimulants,tea, solanaceous drugs and cocculus essds ..... (3 marks).

3-How to use the herbal Expectorants ..... (3 marks).

II-B-In the table below fill with a suitable words .....(5 marks).

1- ……1……. can help to protect liver.

2- .....2.....containing catachins which decrease the absorption of Cholesterol from intesten.

3- .....3..... used for its immune enhancing properties.

4- .....4.....caused by excessive ingestion of the food and prolonged use of some drugs.

5- .....5..... Gaused by contaminated food and water.

6-Antioxidants,silymarin and selenium used as a medicaments for.....6.....

7- .....7..... Substances which aid the expulsion of gases from ....8..... and .....9....

l0- .....10..... considered as lubricant laxatives.

Table 2:

1	6
2	7
3	8
4	9
5	10

مع أطيب الأمنيات بالنجاح والتوفيق

General Instructions:

- Be sure that your exam consists of 6 pages

- All pages contain questions (no blank pages).
- Your exam consists of three parts = 3 x 20 = 60 marks
- All questions are to be attempted.
- Give clear and indicative answers as you can.
-Oral exam starts directly after your written exam (at 11 o'clock).

Part I· Quality management conceRts of guali!y assurance (20 marks).

Dr. Noha Nahedj

A- Discuss the difference between the following items: (10 marks)

[1] Quality Control and quality Assurance

[2] Physico-chemical investigation unit, and physical criteria specification unit

[3] GMP and GLP

[4] Spectrophotometric and chromatographic methods in the range of precision, sensitivity, selectivity, cost and speed capabilities

[5] Representative sample and Random sample

B- Complete the followings: (10 marks)

[1] Deming Cycle it is problem-solving process includes four steps;

a-
b-
c-
d-

[2] Sample collection form should include the following information;

a-
b-
c-
d-

[3] Containers used to store the pharmaceutical samples should fulfil the following criteria;

a-
b-
c-
d-

[4] Factors influence the choice of an analytical method include;

a-
b-
c-
d-

[5] Reasons for incorrect analytical results;

a-
b-
c-
d-

Part II. Errors, documentation and method validation *(20 marks)*

Dr.Ibrahim Refaat

A. Write the scientific term indicating (11) of the following: *(11marks)*

1- The written procedures, instructions, requirements, registration files and others that to be needed in storage, procedures, manufacturing and quality control.
....

2- All the steps of analytical procedure that should be performed and recorded in such a way that all essential information is recorded and no wrong information is introduced. .. ..

3· The process of determining the suitability and reliability of methodology for providing useful analytical data. .....

4- The ability (within a given range) to obtain analytical response, which is directly proportional to the concentration (amount) of analyte in the sample .....

5· The closeness (or the agreement) between a series of measurements obtained from multiple sampling of the same sample under the prescribed conditions.....

6- The closeness (or the agreement) between the accepted value (true or most probable value) and the experimental results. It expresses the correctness of the results.....

7- The extent to which the method can be used to determine particular analytes in mixtures or matrices without interferences from other components of similar behavior.....

8-The test preferred to decide if the doubtful reading (outlier) should be omitted (rejected) or retained .....

9- The lowest amount of analyte in a sample, which can be detected but not necessarily can be quantified as an exact value .....

10- The lowest amount of analyte in a sample which can be quantitatively determined with suitable precision and accuracy .....

11-The degree of reproducibility obtained under a variety of conditions, such as different laboratory, different analysts, different instruments, environmental conditions, operators and materials.

12-The capacity of the results to remain unaffected by small but deliverate variations in method parameters and provides an indica.tion of its reliability during normal use, ...

B. Powdered tablets were analyzed for their aspirin content; determinable errors were supposed. Suggest the proper **method to minimize errors** due to the following sources:
(5 *marks)*

1-Carrying out the analytical method for just one time; .....

2- Boiling the sample with excess standard alkali and cooling before the back titration with standard acid; .....

3- Using only acid-base titrimetry as an analytical technique; .....

4- The presence of excepients and interfering additives in the tablet formula; .....

5- The use of imperfect device (a burette of unauthorized producer) in titration process; .....

C. Write shortly (by the aid of drawing) on TWO of the· following:

(4 marks)

1- Standard addition method.
2- Using of internal standards in HPLC quantitation.
3- Indicating linearity by the correlation coefficient (r);from -1 to +1.

Part III· Chemical Purity, Pharmaceutical Product Stability and Stability

Indicating Assays. **(20 marks)**

Dr. Mohamed Abdel-Galil

a) Mark (√) in front of the correct sentence and (x) in front of the wrong sentence and correct the error in the wrong ones. ***(10 marks)***

1- Industrial chemicals (technical grade) are used for preparation of standard solutions, reference materials and for analytical research. ( )

2- Ointment bleeding is an example of chemical instability. ( )

3- Racemization of l-epinephrine (Levorenine) increases its biological activity. ( )

4- Procaine will hydrolyze upon autoclaving, but procainamide will not. ( )

5- Opaque external packaging of pharmaceutical products is used to minimize oxidation. ( )

6- pH and temperature are the factors most likely to cause clinically significant drug loss, resulting from hydrolysis and oxidation reactions. ( )

7 - In general, the rate of a chemical reaction decreases for each 10° increase in temperature. ( )

8- Ferric hydroxamate method is a stability indicating assay for tetracycline antibiotics. ( )

9- m-aminophenol can interfere in the acid-base titration of p-aminosalicylic acid with sodium hydroxide. ( )

10- Aspirin (acetyl salicylic acid) can form a violet-coloured complex with ferric ions while its degradation product (salicylic acid) can not. ( )

b) Complete the following: **(10 marks)**

● According to their purity, Chemicals can be classified to the following grades:

1- .....

2- .....

3- .....

4- .....

● Synthesis-related impurities may originate from .....
and ..... while formulation-related impurities originate mainly from .... used to formulate an active drug substance.

●The following factors can affect pharmaceutical product stability:

1- .....

2- .....

3- .....

4- .....

● Oxidation in pharmaceutical products is catalysed by.....
..... and .....

●There are 3 main approaches to achieve Stability Indicating Assays which are:

1- .....

2- .....

3- .....

4- .....

● ..... and ..... are separation techniques that can be used for simultaneous separation and quantification of both intact drug and degradation products.

BEST WISHES

Faculty of Pharmacy — Fourth year students (New Program)
Pharmacognosy Dept. — Time allowed: TWO HOURS
Final exam. — 22 June, 2011

All questions are to be attempted

الامتحان يقع فى 8 صفحات

Question I: (25 marks)

Q-I-A-In the answer sheet, select the correct answer for each of the following: (7 marks)

I-The medicinal value of chamomile is largely due to
a-anti-inflammatory — b-spasmolytic
c-carmina tive — d-all of the above

2- The medicinal uses of peppermint are
a-anti-emetic — b-choleretic
c-spasmolytic and carminative — d-all of the above

3-Berberine in barberry has
a-anti-hepatotoxic effect
b-effect on treatment of respiratory infections
c-remarkable infection fighting properties on microorganisms cause urinary tract infections
d-non of the above

4- Taxol is being used clinically in treatment of
a-ovarian cancer — b-breast cancer
c-Iung, head and neck cancer — d-all of the above

5- The mechanism of carminative action of peppermint oil involves several physiologic changes, including
a-antifoam action — b-anti-spasmodic effect
c-a local anesthetic effect — d-all of the above

6-Pulmonary tonics work directly on
a-throat — b-Iungs only
c-Iungs and chest and treating congestion — d-non of the above

7- Thyme is used in respiratory infection, because it
a-has relaxing effect on the UT
b-has relaxing effect on the bronchial tubes
c-has stimulating effect on lungs
d-non of the above

8-Lobelia is a powerful antispasmodic which stop the spasm of the respiratory system and hence useful for
a-asthma especially bronchial asthma — b-colds
c-sore throat — d-non of the above

Answer sheet

1	2	3	4	5	6	7	8

9-Ephedra helps with asthma attacks by

a-relaxing spasming in the bronchi
b-relaxing spasming in lungs
c-treating allergic asthma
d-all of the above
10-Foenugreek is known as a lung herb because it does a great job of
a-expelling mucus b-expelling phlegm from bronchial tubes
c-treat bronchitis d-all of the above
11-Herbs which increase the volume of the urine in UTI causing
a-flushing bacteria out of the US
b-extra filtration
c-prevent kidney stone formation
d-all of the above
12-Buchu is one of the most popular remedy for
a-GIT b-UTI
c-respiratory infection d-non of the above
13- The glycoside arbutin in Uva ursi is
a-powerful antibacterial agent
b-responsible for Uva ursi 's ability to treat UTI
c-should be hydrolyzed to give its effect
d-all of the above
14-Plantain has cooling diuretic properties that make it beneficial for
a-kidney infections b-urinary bladder infections
c- UTI d-all of the above

Answer sheet

9	10	11	12	13	14

Q-I-B-mark (√) for the correct statement and (X) for the false one and correct the false one: (9 marks)

I-Hibiscus sabdariffa calyx extract is used asantihepatotoxic drug, while *Cymbopogen citratus* leaves are employed as antihypoglycaemic ( )

2-Chammomile can be used only as a mouth wash for mouth inflammations ( )

3-Balm is a herb used as antihepatotoxic drug ( )

Question II: (15 marks)

Complete the following statements:

1-Ideal conditions for storage of crude herbal medicinal plants- in order to prevent or retard deterioration-comprise:- ----------

---

2- Rough estimation of closely related alkaloids contaminants in a sample of atropine sulphate is achieved by ----------

---

3- Estimation of the residual halogenated insecticide in a sample of anise is done by --

---

4- Contamination of a sample of liquorice powder with earthy material is done by -----

---

5- Estimation of the moisture content in a sample of gitoxin is done by ----------

---

Question III: (17 marks)

Q-III-A-Give reason for each of the following: (3x2=6 marks)

1- Premaphase type of bonded reversed phase chromatography is preferred upon the brush type

2- The use of ion exchange resin as antiobesity agent

3- The use of ion exchange chromatography in treatment of pruritis

Q-III-B- How can you separate the following mixtures using different chromatographic techniques: (2x2=4 marks)

1- The flavonoid apigenin and the triterpene β-amyrin

2-Caffeine and quinine

Q-III-C- You have a sample of pectin, mention the procedures for determination of its sugar composition using GLC (2 marks)

Q-III-D- Using amino acid analyzer, how can you detect the following: (2 marks)

1-The presence of pork meat in your meal

2- Toxins in canned meat

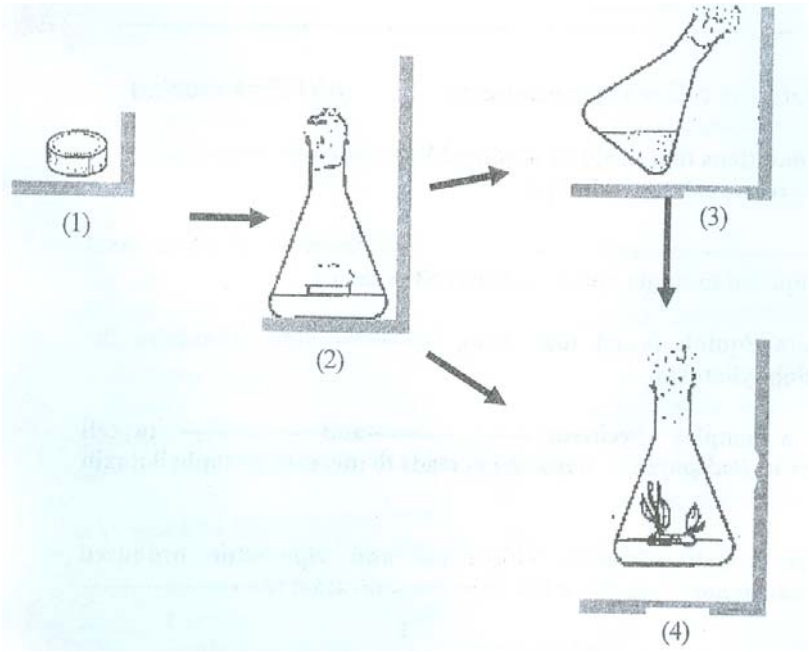
Q-III-E- Write short notes on: (2x1.5=3 marks)

1-Chromatotrone

2- Flash chromatography

Question IV: (13 marks)

Q-IV-A- Complete the following sentences, using the diagram below
(8x0.5=4 marks)



1) Step 1 is representing preparation of ----------
2) Step 2 is representing ---------- formation
3) Step 2 is representing ----------
4) Step 2 is representing ----------
5) All these steps should be done under sterilized condition, media sterilized by ----------, while plant surface is sterilized by ----------
6) Which step represents de-differentiation (step no. -------) and re-differentiation (step no. ------) in plant tissue culture.

Q-IV-B-Give reason(s) for the following (5 marks)

1) Addition of 5-20% v/v of hexadecane, decanol and dibutylphthalate, to culture liquid medium increases taxol production (1 mark)

---

2) 70% $(NH_4)_2SO_4$ used in production of vinblastine (1.5 mark)

---

3) Antibiotics could not be used for tissue culture media sterilization (1 mark)

---

4) Some problems may face tissue culture techniques (1.5 mark)

Q-IV-C- Complete the following sentences: (8x0.5=4 marks)

1)The physical conditions that could be modified like ---------- and ---------- in the tissue culture technique

2) ---------- and ---------- increase 6 times taxol concentration compared to single phase culture (63% taxol)

3) Bristol-Mayers Squibb found that using ---------- light stimulates the production of podophyllotoxin

4) Addition of a complex precursor ---------- and ---------- to cell suspension culture of *Podophyllum hexandrum* leads to increase podophyllotoxin (0.013%)

5) The dimeric indole alkaloids vinblastine and vincristin prosuced commercially by extraction from vinca but their concentration is --------

مع أطيب التمنيات

لجنة الممتحنين:

أ.د./ أحمد عبد الرحمن على

أ.د./ أحمد عابدين محمد

د./ أمانى سيد أحمد

د./ سعاد عبد اللطيف حسن

سوف يعقد امتحان الشفهى لجميع الطلاب عقب الامتحان التحريرى مباشرة

Assiut University
Faculty Of Pharmacy
Dept. of Pharmaceutics
Clinical Pharmacy Final Exam. for fourth Year Pharmacy students
Examination date: Jun, 26th, 2011

Time allowed: Three hours Total Marks (70 marks) Total Pages: 11

The examinationis formed of three parts. All parts should be answered.

Part I pages 1-4 (25 marks)

All questions are to be answered.

I-Mark (T) for the true and (F) for the false statement in the following and rewrite the true forms of those are considered false by you. (15 Marks)

1-Prostaglandines are synthesized at the site of injury by the action of the enzyme cyclooxygenase to inhibit pain sensation by nociceptors.

2- Stimulation of Kappa receptors produces analgesia without respiratory depression.

3- The analgesic regimen of NSAIDs should be individualized for each patient.

4- Paracetamol causes a dose dependent hepatotoxicity.

5- Aspirin can be prescribed as analgesic for patients receiving anticoagulant drugs.

6- Long-term treatment with opioids will probably cause constipation.

7- The risk of developing coronary heart diseases is increased in individual with elevated serum concentrations of low density lipoprotein cholesterol.

8- Triglycerides are the main component of high density lipoproteins.

9- The choice of lipid lowering agents depends on the patient's age.

10-The density of lipoprotein is in direct relationship with the content of triglyceride i.e. the higher the triglyceride, the higher the density of the lipoprotein.

11- High-density lipoprotein-cholesterol levels more than 0.9 mmol/l are associated with increased coronary mortality.

12- Opioid analgesics reduce the sensation of pain by inhibiting pain sensation by nociceptors.

13- Morphine is generally the treatment of choice for chronic severe pain.
14- Tramadol is considered suitable for use ,at the second step of analgesic ladder.
15- Bradykinin is a polypeptide cleaved from plasma protein that is involved in the

recognition of pain.

16- Nociceptors are common in deep tissues and most visceral organs

17- Aspirin is the analgesic of choice for patients less than 12-year old.

18- The combination of paracetamol and codeine for treatment of moderate pain limits the ability to increase the dose.

19-Prostaglandines are synthesized at the site of injury by the action of the enzyme cyc100xygenase to mediate pain sensation by nociceptors

20- Patients with type-2 diabetes show serum levels which indicate increased HDL-C.

21- Acute pain is linear, has a positive meaning and often not associated with Physical signs.

22- Tramadol is considered as the suitable analgesic for use at first step of analgesic ladder.

23-Paracetamol is the first-choice analgesic for relief of all types of pain.

24- Radiation usually does not work on cells that are actively or quickly dividing.

25- Like chemotherapy, radiation therapy is usually. a local treatment.

26- Most commonly, chemotherapy acts by killing cells that divide rapidly.

27-Chemotherapy can not kill cancer cells that may have spread to other parts of the body from the original tumor.

28- Chemo is often not used along with surgery or radiation therapy.

29-The main purpose of isolated infusion approaches is to deliver a very low dose of chemotherapy to tumor sites to reduce systemic damage.

30- All specially-targeted delivery vehicles aim to increase the maximum effective dose that can be delivered to the tumor cells.

II-For each of the incomplete statements cited below right and wrong completions are

given. Choose the right completions among those follow each statement. (1 0 marks)

1- Dyslipidaemia is a term that expresses abnormalities in concentrations of circulating lipids in blood that encompass
a- hyper cholesterolaemia.
b- hyper high-density lipidaemia.
c- hyper low-density lipidaemia.

2- Chronic pain has distinct characteristics as;
a- usually is accompanied with physical signs and symptoms.
b- usually is a part of more complex situation.
c- it tends to be circular in nature.

3- Morphine is the prototypical opioid and is
a- generally the treatment of choice for chronic severe pain.
b- exerting its action primarily by stimulation of the mu opioid receptol's.
c- having a ceiling analgesic effect.

4- Tramadol which has analgesic effect comparable to morphine
a- is less respiratory depressant than other opioids.
b- should not be used if there is a history of addiction or convulsions.
c- its action is probably through stimulation of noradrinaline uptake and inhibition of serotonin release at nerve synapses.

5- Patients with type-2 diabetes show serum lipid levels which indicate
a- increased triglycerides.
b- increased HDL-C.
c- increased LDL-C.

6- The risk of developing coronary heart diseases is increased in individuals with elevated serum concentrations of
a- high-density lipoprotein cholesterol.
b- total cholesterol.
c- low-density cholesterol.

7- For practical purpose the following values are considered ideal serum lipid profile;
a-Total cholesterol, TC < 5.0 m mol/l ≡ <200 mg/dl.
b- LDJ-,-cholesterol, LDL-C <3.0 m mol/l ≡<100 mg/dl
c- HDL-cholesterol, HDL-C ,>2.3 m mol/l ≡< 150

8- Triglycerides are the main component of;
a- very low-density lipoprotein.
b- high-density lipoprotein.
c- low-density lipoprotein.

9 - The choice of lipid lowering agents depends on;

a- the underlying dyslipidaemia.
b- the response required.
c- the patient's age.

10- Methadone is an opioid analgesic which has a number of unique characteristics that include;
a- consistent pharmacokinetics among different individuals.
b- longer administration intervals
c- excellent oral and rectal absorption.

GOOD LUCK
Prof. Elsayed A. Ibrahim

Part 2: Instructor: Prof. Dr. Tahani Elfaha,

1- Choose the most suitable answer, Using the table below; (10 marks)

1	2	3	4	5	6	7	8	9	10

a) Urobilinogen is detected with;
1- Smith test 2- Watson's test 3-Sulkowich test 4- Oxidase test

b) The average volume of the individual red blood cell could be known from;
1- MCV 2- MCH 3-MCHC 4- all of the previous

c) From the lry literature,
1- chem .. abstract 2- encyclopedia 3- textbooks 4- Scientific journals

d)Medications are ordered, packaged, handled and charged in multiples of single dose units in ,
1- Floor distribution method 3- Unit dose distribution method
2- Stock method 4- Individual prescription order

e) Hematocrit (HCT) or Packed Cell Volume (PCV), indicates:
1- The % of WBC 3- The % of RBC
2- The % of platelets 4- All of the above

f) WBCs increased in:
1- pregnancy 3- pathologically during fever
2- anemia 4- All of the above

g) Bacterial flora play a role in the metabolism of drugs as,
1- digoxin 2- Penicillin
3- Flucloxacellin 3- Testestrone

h) Food affects nitrofurantoin administered as microcrystalline form as;
1- Decrease rate of absorption 3- Decrease extent of absorption
2- Increase extent of absorption 4- All of the above

j)Long term use of Aminopterin, Phenytoin ,ethionamide and oral contraceptives cause;
1- Osteomalacia 3- deconjugation
2- Conjugase inhibition 4- Peripheral neuropathy

k) Decrease K concentration, so increase digitalis toxicity occurs with administration of,
1- Cort icosteroids 3- ethacrynic acid
2- furosemide 4- All of the above

2- Tick (√) for right and (x) for false statements and correct the false one, Using the table below;

1	2	3	4	5	6	7	8	9	10

1- The tricyclic antidepressants compete with the antihypertensives and abolish their action.

.....

2- Elder patients are more susceptible to the action of antidepressants.

.....

3- Othostatic hypotension evokes in elderly on administration of antihypertensives and tricyclic antidepressants

.....

4- MAOIs produce reversible enzyme inhibition so interaction with sypmathomimetic amines is not serious.

.....

5- Plasma propranolol levels are decreased if a administered after a protein rich meal

.....

6- Test of glucose in blood is affected (False negative) by administration of corticosteroids and thiazide diuretics.

.....

7- All cholesterol in the intestine is present in the esterified form

.....

8- Increased amounts of fat in the diet result in expansion of mixed micelles which in turn allows for more cholesterol to be excreted and not absorbed.

.....

9- Polysaturated fats decrease formation of prostaglandins, so decrease arthritic pain

.....

10- Combination of serotonergic drugs, causes excess serotonin levels in the CNS.

.....

3-Comment on the following: (5marks)

1- Patients are advised to prevent drinking Grapefruit juice during some therapy. (2 marks)

.....
.....
.....
.....

2- Packaging nitroglycerine in glass containers. (2 marks)

.....
.....
.....

3- MCH value of 20 means; (1 mark)

.....
.....
.....

Part III (20 marks in 4 pages)

Tatal mark

Question I: write briefly on (4 marks).

1- The sequential approaches for the management of cirrhotic ascites.

2- Acute liver failure (ALF).

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Question II: Explain the rule of following agents in management of corresponding states (6 marks).

1- Lactulose and hepatic encephalopathy.

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2- Propranolol and oesophageal varices.

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4- Acetyl cysteine and paracetamol-induced hepatotxicity

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Question III: Complete (5 marks).

1-..... is the agent of choice in Wilson's disease as it promotes urinary execration of ..... in affected patients.

2- ..... is most frequently used indicator of defective clotting factor synthesis. Such clotting abnormalities can be managed by administration of .....

3- The anion exchange resins like ..... are the first line of therapy in the treatment pruritus due to liver disease. They act by.....

4-. . . . . .. are thought to cause steatosis by interfering with .....

5- The group present in the synthetic β-lactamase resistant (.....) has been implicated as a cause of cholestatic hepatitis

Question IV: Choose the correct answer (2.5 marks):

1	2	3	4	5

1- ..... is a potentially fatal condition related to the obstruction of the hepatic venous outflow tract.

A. Gilbert syndrome B. Wilson disease

C. Haemochromatosis D. Budd-Chiari syndrome

2-....., 2g, 8-hourly is effective patients with spontaneous bacterial peritonitis and is commonly used as first-line therapy.

A. Spironolactine B. Cefotaxime

C. Neomycin D. Metronidazole

3-Cross-hepatotoxicity with haloalkanes anesthetics is possible, however, ... appears to be safe with no reports of cross-sensitivity

A. Isoflurane B. Enflurane

C. Lidocaine D. Halothane

4- ..... is highly effective in controlling variceal bleeding
A. Terlipressin B.Tacrolimus
C. Azathioprine D.Oral vitamin K

5- ....., thickening and shortening of the palmar fascia of the hands causing flexion deformities of the ringers, was traditionally associated with alcoholic cirrhosis.

A. Dupuytren's contracture B. Palmar erythema

C. Leuconychia D. Spider naevi

Question V: True (T) or False (F) (2.5 marks)

1	2	3	4	5

1- Both fast and slow acetylators are more susceptible to isoniazid-induced liver damage ( ).

2-COX-2 inhibitors may cause a lower incidence of visceral bleeding and can be used safely in patients with liver with liver diseases ( ).

3-ln investigations of drug induced liver diseases, a-Fetoprotein may be measured to exclude malignancy ( ).

4-Sustained virological response (SVR), can be defined as the presence of viraemia 6 months after antiviral therapy has been discontinued ( ).

5- Gynaecomastia is well documented in chronic liver disease and tends to be more common in alcoholic liver disease ( ).

Assiut University 22 November 2011

Faculty of Pharmacy Time allowed 90 m.

Dept. of industrial Pharmacy.

Mid Semester Exam.

I. Write short notes on each of the following:

1. Combating corrosion.

2. Galvanic corrosion.

3. Fractional crystallization and caking of crystals.

II. Choose one equipment to perform each of the following duties, Draw a neat sketch of the chosen' equipment with notations on the drawing:

1. Continuous filtration of heavy gelatinous suspensions.
2. Separation of fat from milk.
3. Heating of air in cold rooms

With our best wishes

Prof. Ahmad Abou-taleb.

Prof. Aly Abdel Zaher.

Assiut University
Faculty of Medicine
Department of Pharmacology

Toxicology and Forensic Chemistry Examination
for
Fourth year Pharmacy Student
Frish

Time allowed: Three hours Date: 5/1/2012

NOTE

الامتحان يقع فى هذه الورقة وفى ظهرها
* All the following questions are to be attempted in your answer notebook.
* Answer each question in a separate page.
* You have 10 Questions, 7 Mark for each

Answer all the following questions:

1- "Inhalants represent the most dangerous abused substances". Discuss this statement with special emphasis on:
   A)Why they are most dangerous.
   B)Manner of abuse.
   C)Their symptoms of withdrawal.

2- Explain the role of each of plasma protein binding and the hepatic microsomal enzymes as targets for drug-drug interaction (give drug examples)

3- Mention the followings:-
   A)Genetic determinants of antibiotic resistance.
   B)Advantages and disadvantages of antimicrobial combinations.

4- Name **Two** members of the first line drugs used in the treatment of tuberculosis. Mention the mechanism of action and main side effects of these drugs.

5- Briefly explain the general measures which should be undertaken to:
   A)Reduce the absorption of a poison.
   B)Increase the elimination of a poison.

من فضلك أقلب الورقة لمتابعة باقى الأسئلة

6- Write an account on each of the following:
A)Mechanism of action and treatment of cyanide poisoning.
B)Factors affecting carbon monoxide poisoning.

7- Classify forensic poisons into groups, giving examples and explain the confirmatory test for each group.

8) Briefly explain the pharmacological basis underlying the use of the following drugs in the corresponding conditions:
A)6-mercaptopurine and Methotrexate in the treatment of leukemia.
B)Interferons and Ribavirin in the treatment of hepatitis C infections.
C)Sirolimus and Infiximab as immunosuppressive agents

9- Mention **Four** examples of drug -induced hepatotoxicity by different mechanisms.

10- Compare between ciprofluxacillin and amphotrocin B as regarding the mechanism of action and therapeutic uses.

GOOD LUCK

Assiut University Faculty of Pharmacy

industrial Pharmacy Department	Fourth year Final Exam
industrial Pharmacy 1 (PHI 522)	
Semester: First semester	Instructors: Staff members of the department
Time allowed: two hours	Date: 18/1/2012 (Total grade: 70 Marks)

Question I .....(20 Marks)

a) Write the number of each statement followed by (T) for the correct and (F) for the false one:

1- Expansion trap is simple, has moving parts and used for small capacities.
2- Bucket trap are used for large capacities and depends in its action on the density difference between steam and condensate.
3- Surface condensers condense vapors librated from organic solvents.
4- Falling film evaporators are used for concentration of liver extract due to the long contact time between liquor and the heating surface.

b)Write 5 methods adopted to reduce entrainment during evaporation.

c) Mention at least five advantages and uses of film evaporators.

d) Compare between dry and wet condensers with drawing.

e) **Draw an equipment suitable for concentration of Ca CL_2 .**

****

Question II.....(20 Marks)

a)**Write the number of each statement followed by *(√)* for the correct, (X) for the false & <u>correct the false</u> of the following:**

1- The rate of decrease in height of the visible interface between supernatant clear liquid and slurry containing the particles is the sedimentation rate.
2- If the suspended particles have the same size, all particles will fall at the same velocity and no sharp demarcation is observed between the supernatant clear liquid and the slurry.
3- Stoke's law is applicable only when the concentration of solids in the suspension is more than 2% w/v.
4- Ideal suspension is obtained when sedimentation volume (F) = 1 as no sediment is formed.
5- When the density of dispersion medium is greater than density of dispersed substance, sedimentation will occur down- ward.
6- The removal of certain constituent(s) from solid materials is called liquid-liquid extraction.
7- As the extraction proceeds, solute concentration will increase and rate of extraction will decrease, because the concentration gradient is reduced, and the solution becomes more viscous.
8- The particle size influences the extraction rate. So by decreasing the particle size continuously to infinity, extraction rate will be increased continuously.
9- In most cases, the solubility of the material which is being extracted will increase with temperature to give a lower rate of extraction.
10- The third group of equipment for leaching refers to those solids having fine particles that can be held in permanent suspension in the solvent e.g. Dorr agitator.

Please Turn Over ↓

b) Choose an equipment to fulfill the following: (No drawing is needed)

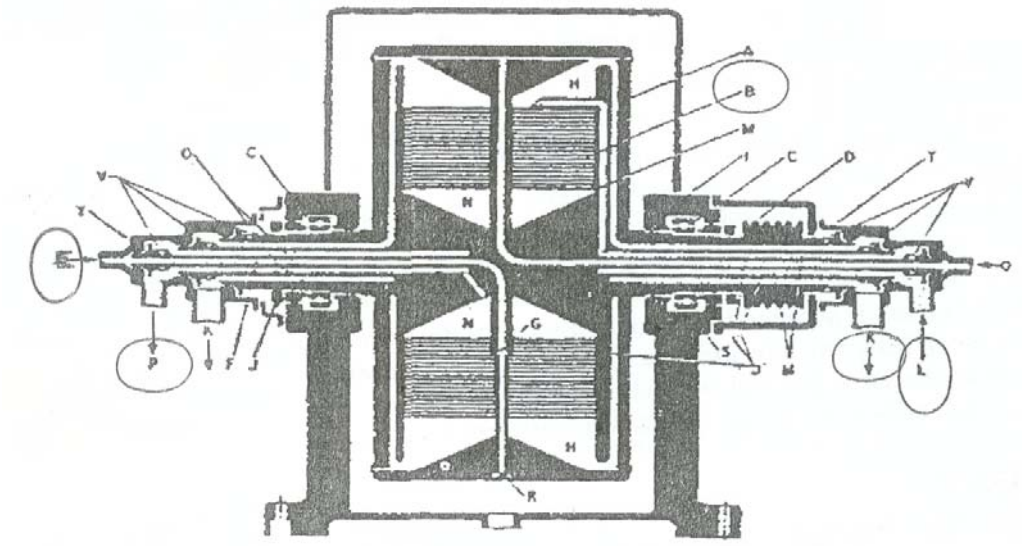
1- Extraction of oil from seeds. 2- Frequently used in beet-sugar industry.

3- Contains Raschig rings and used in liquid-liquid extraction.

4- Can be used for fractional extraction.

5- An extractor that should be designed in a completely vapor-tight housing.

c) Look at the following equipment and answer the questions below:



1- Give the name of that equipment and mention its uses.

2- Is it a batch or continuous? 3- Annotate the parts indicated by the letters E, K, L, P, and B.

****

QIII- .....(15 Marks)

a)Write short notes on each of the following:

1- Factors affecting the choice of the filtration equipment.

2- Mier's supersaturation theory.

Choose and draw one equipment to perform the following duties:

1- Crystallization of KCL

2- Continuous separation and washing of crystals from mother liquor.

QIV .....(15 Marks)

a) Write briefly on the mechanisms and application of fluidization in pharmaceutical industry.

b) Draw a neat sketch for the following equipment and mention its function:

1- Double pass floating head heat exchanger.

2- Double drum vacuum dryer.

GOOD LUCK!!!

Oral exam will be held in the department directly after this exam.

Assiut university
Faculty of pharmacy
Pharmaceutical analytical chemistry department
First term, final exam on:
Pharmaceutical analysis and quality control. (elective course);
4th year students
Date: 21-1-2012

Read the following carfully before starting your answer:

Time allowed: 2 hours.
Total marks: 20 mark.
All questions are to be attempted.

Be Sure That:
The exam is composed of **8 pages** (4x2); all are printed except page 2.

Oral exam:
Directly after written exam; at the department, for all studentds.

Authors:
Prof. Dr. Ibrahim H. Refaat *(question 11, pages; 5,6)*
Dr. Noha N. Attia. *(question I, pages; 3,4)*
Dr. Mohamed A. Abdallah. *(question III, pages; 7,8)*

Best wishes

Question I ***(20 marks)***

1- How can you determine the acceptance of sampling? *(4 Marks)*

2- Compare between the titrimetric and spectrofluorimetric methods with regard to range of precision. sensitivity, selectivity, cost and speed capabilities. (4 *Marks)*

3- Complete the following sentences with the missing word(s) *(12 Marks)*

a) Sampling plans consist of ..... and .....

b)The sampling procedure should be appropriate to .....,
..... and .....

c)Quality can be defined as a product or service free of .....
while quality assurance can be defined as ..... of defects.

d) Daming Cycle is .....

e) ISO is ..... which is a combination of .....,
..... and .....

f) Areas of pharmaceutical analysis are .....,
..... and .....

g) Sampling operation scheme includes the following steps: .....,
Lot/Batch, ..., Bulk sample, ...,
Laboratory sample, and finally .....

h) The following factors influence the choice of an analytical method .....,
..... and .....

i) The following reasons usually cause loss of the analyte at various stages of
the analytical procedure ..... and .....

Question II. (20 marks)

Note: *you can use page 2 for drawing whenever you see this sign:*

C OMPLETE THE FOLLOWING:

1) For an analytica1 method, a "validation report" includes:

(2) In the "Internal standard· (1.S.) method":

(a) It is suggested to reduce errors caused by .....

(b) Requirements for substance to be used as I.S. are .....

(c) Calibration curve is constructed by plotting ..... against .....

(3) In "standard addition method":

(a). It is suggested to reduce errors caused by .....

(b). The method can be simply represented by drawing as: .....

(4) The method of "least squares" is:

may be represented by drawing as: ...

Differentiate (by definition) between:

Ruggedness and Robustness:

(b). Reproducibility and Repeatability:

(c). LOD and LOQ, represent by drawing their signal(s) to noise ratios ≈

(6).

(a). Write (between practice) the number of significant figures for the following data: 1.0 ( ), 0.1 ( ), 0.001 ( ), 0.100 ( ),and 1.001 ( ).

(b). Multiplying: 2.610 x 1.20 = ... *(considering the proper number of significant figures)*

(c). Considering the proper number of significant figures calculate the molecular weight of $K_2Cr_2O_7$. *(K = 39.10 Cr =* 51.9961 O = 15.9994)

(d). On a titrimetric experiment, volumes obtained Were 10.0, 11.0, 10.2 and 10.1 ml. find out the suspected value and decide should it be rejected as an outlier or retained.

N	Q_{crit} (CL:90%)	Q_{crit} (CL:95%)	Q_{crit} (CL:99%)
3	0.941	0.970	0.994
4	0.765	0.829	0.926
5	0.642	0.710	0.821

(e) Two students carried out a titrimetric experiment,
student I, produces a mean value of 10.2 ml (where the true value is 10.0 ml);
student II, produces a mean value of 20.2 ml (where the true value is 20.0 ml).
Who is the more accurate one? And how much accurate is he?

Question III- Chemical Purity, Pharmaceutical Product Stability and Stability Indicating Assays. . ***(20 marks)***

I. Complete the following. ***(6 marks)***

1. Setting limits for impurities in bulk drug substances considers a number of factors including:

a) ..... b) .....

c) ..... d) .....

2. The following factors can affect pharmaceutical product stability:

a) .....

b) .....

c) .....

d) .....

3. Pharmaceutical grade chemicals must conform with ..... and should be labelled with .....

5. As a result of stability testing a .....for the Pharmaceutical product can be established, and ..... can be recommended.

II. Discuss one, example for each of the following. ***(5 marks)***

1. Stability indicating assay for β-lactam antibiotics.

2. Chemical incompatibility.

3. Stability indicating assay for Aspirin.

4. Hydrolysis.

5- Stability indicating assay for fluoroquinolone antimicrobials (e.g. ciprofloxacin).

III. Mark (√) in front of the correct sentence and (x) in front of the wrong sentence and <u>correct the error in the wrong ones</u>. (5 *marks)*

1- Ointment bleeding is an example of chemical instability. ( )

2- Procaine will hydrolyze upon autoclaving, but procainamide will not. ( )

3- Epimerization of I-epinephrine decreases its biological activity. ( )

4- In general, the hydrolysis rate is directly proportional to the ionic strength with oppositely-charged ions. ( )

5- Technical grade chemicals can be classified to spectroscopic-grade and HPLC-grade chemicals. ( )

IV-In a table form (given below), discuss briefly Four types of stability that should be maintained throughout the shelf-life of a drug product. (4 marks)

Type of stability	Condition maintained throughout the shelf-life of drug product

Assiut University Faculty of Pharmacy

Department: Industrial Pharmacy	Fourth year Final Exam
industrial Pharmacy 1&2	
Semester: First semester	Instructors: Department Staff members
Time allowed: Three hours	Date: 25/1/2012 (Total grade: 120 Marks)

All questions are to be answered:

Question I..... (20 Marks)

1- Write short notes on the following:

a)Factors affecting rate of filtration.

b)Induction of supersaturation.

2-D raw a neat diagram for the following equipment:

a)Howard crystallizer.

b)Rotary drum vacuum filter.

****

Question 11 ..... (20 Marks)

I-Mention all what you know about:

a)Factors affecting corrosion.

b)The law governing the rate of heat transfer.

2-Drawa neat sketch for the following equipment:

a)Double drum vacuum dryer.

b)Single pass tubular heater.

****

Question III..... (25 Marks)

1- Compare between standard and basket evaporators.

2- Explain the following:

a)Properties and types of steam as a heating medium.

b)Advantages and uses of film evaporators.

****

Question IV..... (25 Marks)

1- Define each of the following:

a) Sedimentation. b) Leaching. c) Liquid-liquid extraction.

2- Choose an appropriate equipment to perform the following duties (Without drawing):

a)Extraction of antibiotics.

b)Extraction of oil from seeds.

c)Extraction of sugar from beets.

d)The third group of equipment for leaching from solids having fine particles.

e)Fractional extraction;

3- Explain briefly the factors influencing the rate of leaching.

4- Draw a neat sketch for Scheibel column extractor and mention its advantages.

Please Turn Over ♦♦♦

Question V..... (30 M arks)

1- Write five differences between single and rotary tablet machine.
2- Mention the factors affecting cohesion of powders.
3- What are the mechanical hazards encountered by packaging.
4- Mention the minimum aseptic requirements for personnel according to good manufacturing practice.
5- Enumurate the problems associated with solvent film coating.
6- Give the name of the most appropriate equipment suitable to perform the following duties. (<u>Without drawing</u>):
a)Size reduction of thermolabile materials.
b)Measuring of the powder cohesion.
c)Removal of microorganisms & bacterial spores from air in the sterile area.
d)Milling of highly abrasive materials.
e) Compression of dry powder mixtures into a thin sheet during the preparation of tablets.

GOOD LUCK!!!

N.B.

Oral EXAM will be held directly after this in the department

Assiut University
Faculty of Pharmacy
Department of Pharmaceutics

Fourth Year, Pharmaceutical practice and hospital pharmacy, Final exam (25-01-2012), 70 marks in 13 pages, time allowed 3hr

Instructors:

Professor: Mohamed Ali Attia, Part I (23 marks)
Professor: EIsayed Ali Ibrahim, Part II (24 marks)
Dr: Hany Saleh Mohamed Ali, Part III (23 Marks)

Good Luck

Answer the following questions: (Total marks 23)

Question - 1 (10 marks, half mark /point)

A. Choose the correct answer for each of the following statements:

1. Which of the following division is responsible for plan and coordinate the departmental activities within the hospital.
   a. Administration division. b. Education & training division.
   c. Central Information division. d. None of the above e. All of the above.
2. According to the hospital size, the out-patient services can be provided from which of the following:
   a. Separate out-patient pharmacy. b. A combined in & out-patient unit service.
   c. From both a and b . d. None of the above.
3. Drug information service division offer which of the fOllowing services:
   a.Conduct research studies involving the drug literature.
   b.Provide information & consultation services to medical staff and students.
   c.Maintain technical information for use by department staff.
   d.All of the above.
4. Which of the following consideration should be taken in compounding of official preparation in hospital :
   a.Suitable equipment and space should be available.
   b.Quality control should be done on raw materials.
   c.Packaging and labellng should be fulfill the requirement.
   d.All of the above.
5. Hospital size of fifty beds need which of the following numbers of pharmacist:
   a. Only one pharmacist. b. One pharmacist plus one technician.
   c. Two pharmacist plus one technician. d. None of the above.

6. Which of the following functions that drug package must fulfill :

a.Identify their contents completely and precisely.

b.Protect their contents from environmental effects.

c.Protect their contents from deterioration.

d.All of the above. e. None of the above.

7.Which of the following is the member of the pharmacy& therapeutic committee:

a. Physicians. b. Pharmacists. c. Other professional.

d. All of the above. e. None of the above.

8. Pharmacy must maintain a clear area out of the direct flow of traffic to prepare IV admixture with which of the following:

a. Laminar air flow hood. b. Barrier isolators.

c. Both a and b d. None of the above.

9. The composition of the pharmacy & therapeutic committee should be:

a. Three physicians only. b. Three pharmacists only.

c.Three physicians plus one pharmacist.

d.Three physicians plus one pharmacist & representative of the nursing staff.

e. None of the above.

10.Environment controls and testing include which of the following:

a. Routine cleaning schedule. b. Laminar flow hood certification per 6 months.

c. Particle count. d. All of the above. e. None of the above.

11. In hospital, there should be a program of evaluation, selection & use of medicinal agents, which of the following can provide such program.

a. Hospital formulary. b. Training program.

c. Education program. d. None of the above.

12.Which of the following is /or are the components of an IV program:

a. Preparation area. b. Storage space. c. Admixture systems.

d. All of the above. e. None of the above.

13. Which of the following is responsible for medication inventory in large hospital:

a. Director of pharmacy. b. Physician staff. c. Nursing staff.

d. Hospital pharmacist. e. None of the above.

14. Chloramphenicol / Penicillin represent which of the following incompatibility:

a. Therapeutic. b. Physical. c. Chemical. d. None ot the above.

15. The successful delivery of any pharmacy service will be based on which of the Following:

a. Expert Management. b. Administration procedures.

c. Both a and b . d. None of the above.

16. In patient pharmacy services include which of the following:

a. Drug distribution system. b. Intravenous admixture.

c. Drug monitoring. d. All of the above. e. None of the above.

17. Which of the following divisions perform dispenses and controll.V. solution:

a. Departmental services. b. Out-patient services.

c. Drug information services. d. None of the above.

18. Cool place is one having a temperature controlled between which of the following:

a. From 5-5°C. b. From 16–30°C. c. From12-5°C. d. None of the above

19. Educational &training division activities is for which of the following:

a. Pharmacy staff only. b. Newly employed pharmacist.

c. Pharmacy technicians. d. All of the above.

20. The successful delivery of any pharmacy service offered will be based on which of the following:

a. Expert management. b. Administrative procedures

c. Both a and b. d. None of the above.

Answer sheet

Question #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Answer																				

B. What do you know about each of the following: (13 marks total)

1. The sub-functions of drug monitoring. (2 marks)

2. The need for drug therapy monitoring (3 only). (2 marks)

3.Potential drug therapy problems (3 only). (2 marks only)

4.Control on purchases of goods. (3 marks)

5.Reasons for manufacture or bulk compounding in hospitals. (2 marks)

6.Environmental control and testing. (2 marks).

Instructor Prof. Dr. Elsayed A. Ibrahim
Total Marks = 24

1- Give a reason for each of the following: (1mark for each)

1- Special consideration should be given by the community pharmacists when responding to symptoms of elderly patients.

2- The health authorities actively encourage Self-Medication.

3-Absence of or decrease in lactobacilli of vaginal flora is a risk factor for bacterial vaginosis (BV).

4-Community pharmacists have greater role in the health care delivery to the community.

II-Mark (T) for the true and (F) for the false statementi,n the following and rewrite the true forms of those are considered false **by you. (1/2 Mark for each).**

1-A symptom is a clinical change in a person, which may be observed by a clinician and indicate a disease.

2- Women should not douche during or between periods.

3- Oral medroxyprogesterone (Provera) has shown benefit in treating patients with pain due to endometriosis, or primary dysmenorrhea.

4- The corpus luteum provides a source of estrogen and progesterone during pregnancy.

5- With the start of each menstrual cycle, follicle-stimulating hormone (FSH) that is produced from the hypothalamus stimulates several follicles in the ovaries to mature over a two-week period until the egg nearly triple in size

6-lnjections of the progestin called medroxyprogesterone (Depo-Provera) should not be used for longer than 2 years.

7-At final menses estradiol level is at 50% more than during reproductive years.

8- The hypo thalamus (an area in the brain) controls the reproductive hormones through producing follicle-stimulating hormone (FSH) and luteinizing hormone (LH).

9-Primary amenorrhea occurs when periods that were previously regular stop for at least three months.

10-Nonsteroidal anti-inflammatory drugs (NSAIDs) are effective in regulating periods in women with menstrual disorders, including menorrhagia .dysmenorrhea. and amenorrhea.

11-Pregnant women symptomatic with bacterial vaginosis could be treated with metronidazole gel intravaginally.

12-Clindamycin ovules 100 g intravaginally once at bedtime for 3 days could be recommended as a regimens for treatment of bacterial vaginosis.

13-Estrogen, progesterone, and the male hormone testosterone are secreted by the ovaries at the command of FSH and LH.

14-ln recent years there is an increasing request by the manufacturers to reclassify their medicines from Pharmacy Only 'P' to Prescription Only Medicines "POM".

15- Tight-fitting undergarments is considered as one of the risk factors for bacterial vaginosis (BV) infections.

l6- Nonsteroidal anti-inflammatory drugs (NSAIDs) are effective painkillers for menstrual disorders.

17- Candida vaginitis infection is considered to be a Sexually transmitted disease (STD).

18- Extreme weight loss and eating disorders are common causes of amenorrhea in adolescent girls.

19-Avoiding douching and avoiding the use of unnecessary antibiotics can increase the risk for yeast infections.

20- 90nadotropin-releasing hormone (GnRH) is released by the hypothalamus. and stimulates the pituitary gland to produce follicle-stimulating hormone (FSH) and luteinizing hormone (LH).

III-For each of the incomplete statements cited below ONLY ONE completion of those given is wrong. Choose the wrong one among those follow each statement (1 mark for each)

1-Skills required by the pharmacist to respond to symptoms include:
a- knowledge of diseases and their treatment.
b- the ability to match between symptoms and the generally accepted picture of specific disease.
c- ability to select and conduct the most suitable diagnostic procedures.

2- Vaginitis usually characterized by:
a- vaginal discharge.
b- vaginal bleeding.
c- vulvar itching.

3-Nonnal vaginal environment is characterized by;
a- bacterial flora which is dominated by lactobacilli.
b- vaginal discharge which is clear to white, odorless, and of high viscosity.
c- vaginal pH of 4.8 to 5.2

4- Risk Factors for shorter menstrual cycles include:
a- regular alcohol use.
b- being over 40 years old.
c- stressful jobs.

5- Bacterial Vaginosis (BV) is associated with:
a- homogeneous, white, noninf1ammatory discharge that smoothly coats the vaginal wall.
b- increase of vaginal pH to more than 4.5.
c- decrease of vaginal pH to less than 4.0

6-Risk factors for yeast infections include:
a- loss of normal vaginal flora.
b- decrease of vaginal pH.
c- diminished glycogen stores.

7-Symptoms of yeast infections include:
a- Frothy, gray or yellow-green; malodorous discharge.
b- severe vaginal pruritus,
c- external dysuria.

8- Menopause:
a- is a hypo-estrogenic state.
b- is a natural event that normally occurs between the ages of 45 and 55.
c-begins directly after final menses.

9 - Perimenopause is the time around menopause and is characterized by;
a- average age at onset in the late 40's.
b:...high progesterone - Fluctuating Estrogen.
c- irregular menstrual cycles.

10- Decreased estrogen levels are associated with the following long-term effecls:
a- bone loss and eventual osteoporosis in some women.
b- changes in cholesterol levels and greater risk of heart disease.
c -hot flashes.

GOOD LUCK
Elsayed A. Ibrahim

Part III, Instructor Dr Hany Saleh Mohamed Ali (23 marks in 4 pages) Total mark

1- Define (3 marks):

A. Otosclerosis

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B. Self care

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C. Diagnosis of exclusion

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II. Differentiate (in a table format) between (3 marks):
Conventional pharmacy and pharmaceutical care

III- Complete (6 marks):

A. Different types of responses include:

*.....

*.....

*.....

*.....

B- Pharmaceutical care aiming to achieve:

*.....

*.....

*.....

*.....

C. Problem solving plan consists of:

*.....

*.....

*.....

*.....

IV- Denote (T) for true or (F) for false sentences: (6 marks)

1	2	3	4	5	6

7	8	9	10	11	12

1- Patient compliance declines over time.

2- Symptoms of early cataracts may be improved with new eyeglasses.

3- The mastoid has a large blood supply, thus maximizing the effect of any antibiotics.

4- In people who have no symptoms, it is recommended that people over 40 have their eyes checked every two years.

5-Sodium fluoride tablets have been shown to help prevent the progression of otosclerosis.

6- Early stages of wet AMD can be treated with high-dose formulations of antioxidants.

7- Drug interaction may result in too low dosage of some drugs.

8- It is difficult of inherited color vision problems to be treated or corrected.

9-Listening, like communication in general, does not come naturally to some people.

10-Probing responses are usually in the form of a question designed to elicit additional information.

11-An empathic response goes beyond an understanding response.

12- Nonproliferative retinopathy is the more severe type of diabetic retinopathy

V- Choose the best answer. Put your answer in the table (5 marks):

1	2	3	4	5

6	7	8	9	10

1- The perforated eardrum can be treated by an operation called .... where a tissue graft is used to seal up the hole.

a. myringoplasty b. ossiculoplasty c. satepedectomy d. none of them

2- ..... is all inflammatory processes of the middle layers of the eye.

a. Uveitis b. Conjunctivitis c. none of them d. both of them

3- .....may be the initial symptoms of a retinal detachment

a. Flashing lights b. Floater c. both of them d. none of them

4- All of the following are characters of pharmaceutical care except...

a. continuous b .patient oriented c. episodic d. circular

5- ..... is the inflammation of the eyelids.

a. Corneal ulcer b. Uveitis c. Blepharitis d. none of them

6- ..... is a condition in which the eyes don't look toward an object together.

a. Astigmatism b. Keratoconus c. Strabismus d. Retinal detachment

7- People with .... have difficulty in seeing distant objects, but can see near objects clearly

a. nearsightedness b. myopia c. both a and b d. astigmatism

8- This skin can then mix with wax and other debris to form a cyst-like mass.This is known as ..

a. keratoconus b. heamatoma c. cholesteatoma d. none of them

9-The prostheses can be made from.....

a. man-made bone material b. plastic c. ceramic d. all of them

10- A ..... is a tender, painful red bump located inside the eyelid.

a. cholesteatoma b. blepharitis c. keratoconus d. sty

Good luck, Dr Hany Saleh

Assiut University
Faculty of medicine
Community medicine dept.

Clinical pharmacy (4th year)
Jan 2012

Part1: Give an account on: (40 marks)
1- Prevention and control of air pollution
2- Supplementation of proteins
3- Functions of vitamin A
4- Prevention of poliomyelitis
5- Break point of chlorination
6- Prevention of tetanus

Part 2: (35 marks)
1- Definition of the following: Epidemiology, Health
2- Discuss briefly epidemiological infectious cycle
3- Write note on vaccination of infants during
1 st year of life
4- What are the recommendations to prevent spread of the swine influenza among humans

Assiut University
Faculty of Pharmacy
Fourth year Students

FIRST AID EXAM
Time allowed: Two hours
January, 27, 2012

I-Write short notes on each of the following: (24 Marks)

A-Rules of first aid
B- First aid kit
C- Side Effects - Drug Interactions - Warnings of Nonsteroidal anti-inflammatory drugs (NSAIDs)
D- Interactions of grapefruit with certain drugs
E- Epinephrine autoinjector (EPIPEN)
F- Reversible causes of cardiac arrest
G- Signs and symptoms of shock
H- Open wounds that should always go to the doctor

2-Define the following: (4 Marks)

A-First aid
B-Fainting

3-First aid treatment of: (15 Marks)

A- Foreign body airway obstruction in adult
B-Convulsion
C- Scorpion bite

4-Paediatric basic life support algorithm-illustrate (7 Marks)

لجنة الامتحان: أ.د. محمد جمعه المظ ، د. علا وهبه جنيدى ، د. هاله سعد عبد الغفار

With our best wishes

Assiut University		B
Faculty of Pharmacy	Department: Industrial Pharmacy	
Course Code & Title: Phi 543	Industrial Pharmacy II	
April 2012	*Instructors: Staff members of the Department*	
Mid Term Exam		
Total Marks: 15 Marks	Time Allowed: 1 Hour	

1. This examination consists of (15 pages)
2. This examination carries 15/150 marks.

Answer the following Questions

QI .....(2.5 Marks)

A- "Tailored bioavailability" is of the advantages of tablet dosage forms. Explain what is ment by this term.

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.....

B- What are the factors taken in consideration in selecting excipients during tablet formulation?

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.....

****

QII.....(5 Marks)

A-Put (X) near the false and (√) near the true sentence:

1- Particles deposited in the lung by inertial impaction when da < 5 μm. ( )

2- Small particles with dimensions less than 5μm are more likely to reach the alveolar region ( )

3- particles with da 1-5μm are expected to be efficiently deposited in the lung periphery ( )

4- Coulter counter based on weight diameter while Andreasen pipette based on sedimentation diameter. ( )

5- Particle size distribution reflects particles polydispersity ( )

6- The biological barriers face the particles after deposition includes, the mucus barriers and macrophages alone. ( )

7- DPls demonstrate more dosing reproducibility than MDls ( )

8- interparticulate forces between particles can be overcome by formulation of dense particles with small geometrical particle size. ( )

9- Aerodynamic diameter is a function of size and shape of particles ( )

10- NGl. Cl, MMl require the use of preseparator during the rum ( )

B- Mention the function of each of the following:

1- Mercury and electrodes in coulter counter.

2- Silicone rubber O- ring add in ACIs.

3- Coating of cups in NGIs.

4- Preseparators in cascade impactors.

5- Amino acids in particles formulation.

QIII .....(7.5 Marks)

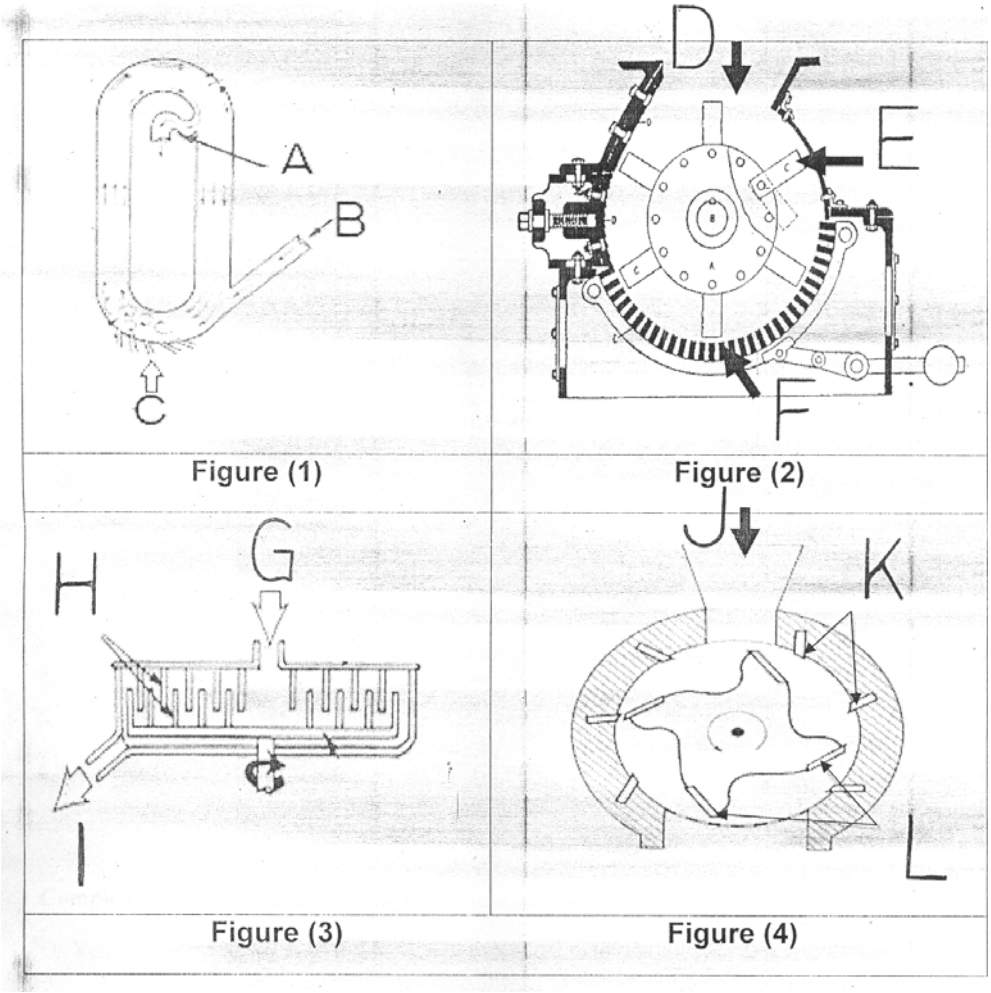

Figure (1)

Figure (2)

Figure (3)

Figure (4)

A- In the table below write the name of each equipment shown by Figures 1-4.
B- What is the mechanism of action of each?

Figure number	Name	Mechanism of action
Figure (1)		
Figure (2)		
Figure (3)		
Figure (4)		

C. Annotate the parts indicated by the letters in the following table.

Figure number	Annotations
Figure (1)	A)....., B) .....C).....
Figure (2)	D)....., E) .....F).....
Figure (3)	G)....., H) .....I).....
Figure (4)	J)....., K) .....L).....

Complete the following (be concise):

D. You are provided with a tough and hard medicinal plant that needs to be comminuted to fine particles. Which one is easier to deal with .....

How can you comminute: 1) A soft ingredient as stearic acid & beeswax? .....

.....

2) An Explosive materials .....

.....

Moh's scale is a measure of .....

It ranges from: .....

E) Enumerate four sources of contamination in clean area and define "clean room"

1) .....

2) .....

3) .....

4) .....

Clean room is .....

.....

.....

F) Define "Wet grinding and Dry grinding" and mention the advantages of wet grinding:

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GOOD LUCK!!!!

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Assiut University
Faculty of Medicine
Department of Pharmacology

BIOASSAY EXAMINATION
For
Fourth Year Pharmacy Students

Time Allowed: Three hours Date: 2/ 6/ 2011

NOTES

الامتحان يقع فى ورقة واحدة (الوجه والظهر)

* All the following questions are to be attempted in your answer notebook.
*Answer each question in a separate page.
*You have 7 questions, 10 Marks for each

Answer all the following questions:-

l)Explaine the reasons underlying the use of each of the following drugs in the corresponding conditions:

A)Carbimazole and propranolol in thyrotoxicosis.

*B)*Metformin and acarbose in type 2 diabetes.

2) Brifely mention each of the following:-

A) Mechanism of action, therapeutic uses and adverse effects of metyrapone.

B) Mechanism of action, therapeutic uses, adverse effects and contraindications of bisphosphonates.

3)Write a brief account on each of the following:-

A)Evaluation of anticonvulsant activity.

*B)*Types of oral contraceptives and their main contraindications.

4) Mention each of the following:-

A) The reasons underlying ***Two*** therapeutic uses of ACE inhibitors and mention ***Five*** of their side effects.

B) Main pharmacological properties of drugs used in acute attack of migraine.

5) Brifely describe each of the following:-

A)***Two*** different methods for bioassay of vasopressin.

*B)****Two*** different methods for screening of atropine-like activity.

6) Describe how to perform the following:-

A) The cat nictitating membrane to differentiate between alpha adrenergic blockers and adrenergic neuron blockers.

B) The tetrad system for screening of ganglionic blockers.

من فضلك اقلب الورقة لمتابعة باقى الأسئلة

7) For each of the following MCQs select the ONE most appropriate answer and WRITE IT IN YOUR ANSWER NOTEBOOK:1-

1-Thyroxine produces *One* of the following effects:

A) Increased number of hepatic LDL receptors. B) Decreased heart rate and cardiac output.
C) Decreased body temperature. D) Decreased the sensitivity of rates to oxygen, deficiency

2- Actions of insulin include all of the following *Except:*

A) Binding to membrane receptors that have tyrosine kinase activity.
B) Decreased protein catabolism.
C) Promoting glucose uptake by tissues. 1) Increased glycogenolysis.

3- Non-specific tests for screening of CNS depressant activity include the following *Except:*

A) Potentiation of other CNS depressants. B) Antagonisim of other CNS depressant activity.
C) Antagonism of CNS stimulation. D) Sleeping time and righting reflex.

4- Evaluation of CNS stimulants include the following *Except:*

A) Screening of analeptics by actophotometer. B) Strychnine-induced convulsions.
C) Duration of anaesthesia. D) None of the above.

5- The following tests may be used for screening of the analgesic activity *Except:*

A) Runway and sand displacement methods. B) Chemical and electrical methods.
C)Tooth-pulp method on humans and dogs.
D)Mechanical, thermal methods and addiction liability tests.

6- Screening of anti-Parkinsonian activ.ity include the following *Except:*

A)Biochemial methods for determination of dopamine and its metabolites.
B)Induction of parkinsonism by MPTP. C) Induction of convulsions.
D) Biological methods to detect effect on tremors and muscle rigidity.

7-*One* of the following isolated organs is used for screening of beta agonistic activity:

A) Frog rectus abdominus muscle. B) Rat uterus.
G) Rat colon. D) Guinea pig vas deferens.

8- Finkleman preparation can be used for differentiation between *One* of the following pairs of drugs:

A) prazosin and propranolol. B) Atropine and scopolamine
C) Furosemide and spironolactone. D) Carbachol and physostigmine

9- *One* of the following drugs is used for diagnosis of adrenal insufficiency:

A) Octreotide. B) Cosyntropin. C) Cabergoline. D) Desmopressin

10- *One* of the following methods is used for bioassay of TSH:

A) Adrenal ascorbic acid depletion method. B) Ovarian ascorbic acid depletion method.
C) Histometric method. D) Increased tail length of hypophysectomized rats.

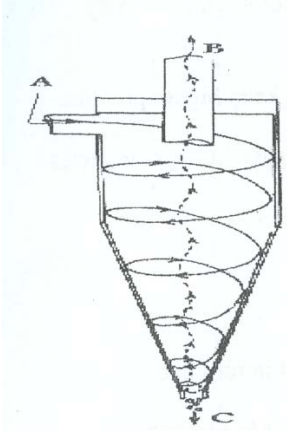
Assiut University		B
Faculty of Pharmacy	Department: Industrial Pharmacy	
Course Code & Title: Phi 543	Industrial Pharmacy II	
Wednesday 6/6/2012	*Instructors: Staff members of 2nd term*	
Final Exam		
Total Grade: 70 Marks	Time Allowed: 2 Hour	

1. This examination consists of (8 pages)
2. This examination carries 70/150 Marks.
3. *Oral exam will be held in the department Directly After this written exam.*

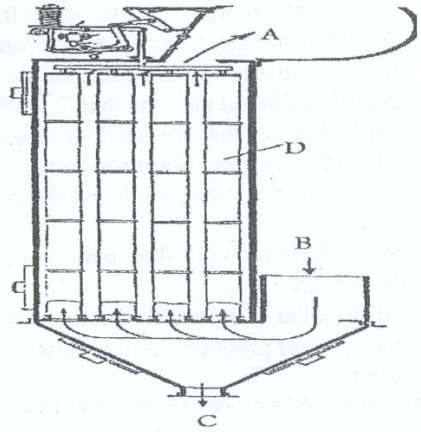
Answer the following Questions

Q1: .....(15 Marks)

A) Look at the following figures and answer the questions follows:



(Figure I)



(Figure II)

A- Write the name of each equipment in Fig. I and Fig. II

Figure Number	Name	Function
Figure (I)		
Figure (II)		

B- Annotate the parts indicated by the letters in the following table.

Figure Number	Annotations
Figure (I)	
Figure (II)	

C- Which one can be used for filtration of air and why?

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.....

D- <u>Concerning the equipment in Fig. I : Answer the following:</u>

a) What are the factors affecting its separation efficiency?

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.....
.....

b) Mention the modifications you can introduce to improve its efficiency.

.....
.....
.....

E- Write (T) for the true statement and (F) for the false one

1- As operator activities increase in an aseptic processing operation, the risk of product contamination decreases. ( )
2- HEPA filter is_composed of various fibers bonded with resin or acrylic binders. Asbestos is the best fiber material for that purpose. ( )
3- During preparation of sterile products, it essential to remove microorganisms only while removal of particulates is not that very important. ( )
4- Operators are the major source of contamination in sterile area. ( )
5- Differential air pressure in the sterile are means that we have to keep higher pressure at HEPA-filtered air zone than in buffer room outward. ( )
6- Air lock doors that are fixed into the sterile area consist of two <u>airtight doors</u> in series which do not open simultaneously. ( )
7- HEP A filter is very essential in the sterile area as a means of sterilization of the products. ( )
8- Spray dryers can dry fluid materials e.g. solutions, slurries, and thin pastes. ( )
9- HEPA filter is more efficient than ULPA filter. ( )
10- Spray dryer products are free flowing with low bulk density and in turn bad solubility. ( )

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QII: .....(20 Marks)

A) <u>Do as shown between brackets:</u>

1- Powder mixing (Show with a simple diagram the mechanisms and define each)

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2- Ordered mixture (enumerate and define each using simple diagrams)

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3- Powder segregation (describe with simple diagrams and mention how to overcome the proble).

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4-High speed mixer-granulator (Draw an annotated sketch and enumerate its advantages)

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B) Answer the following questions:

1- Define cGMP .....

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2- What is the intent of cGMP regulation?

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3- Define each of theoretical yield, actual yield and the percentage of theoretical yield. Explain the importance of these values.

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4- Write a short note on ventilation, air filtration, air heating and cooling systems as governed by the cGMP.

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QIII.....(20 Marks)

A. Encircle the correct answer:

1) Absorption of a solid drug from tablet dosage form is:

a. Preceded by disintegration. b. Followed by dissolution.
c.Always dependent on dissolution rate.
d.Followed by the appearance of the drug in the systemic circulation.

2)The following are advantages of the direct compression technique EXCEPT:

a.Suitable for moisture & heat sensitive materials.
b.Save labor, space& equipment
c.Produce tablets with shorter disintegration time and faster dissolution.
d.Suitable for very small and very large doses.

3) The preformulation scientist should consider:

a. Organolptic propetties of drugs. b. Physico-chemical data for the drug.
c. Intrinsic dissolution of drugs d. All of the above.

4)Single punch tablet machine does not include:

a. Hopper b. Feed frame
c. Punches and die d. Ejection adjustment screw

5)The following are steps in the wet granulation process EXCEPT:

a. Milling of drugs and excipients b. Preparation of binder solution
c. Compression of granules into slugs d. Coarse screening of the wet mass
e. Addition of lubricant and compression into tablets.

6)In the rotary tablet machine, the tablet compression is affected by:

a. Lower punch only b. Upper punch only
c. Both lower and upper punches. d. Neither the lower nor the upper punch.

7) Amount of fines kept in tablet granulation before compression should be:

a.1-2% b.10-15% c. Zero % d. >30 e. None of the above

B· Complete the following:

1) The intragranular disintegrant is included in the tablet formula to .....
.....
while the extragranular disintegrant is included to: .....
.....

2) Problems of film coating include:

a. ..... b. .....
c. ..... d. .....

3) In order to overcome the capping problem in tablets we may:

a. ..... b. .....
c. .....

C- Assume a NSAID drug "x" in the USP XXVI has a dose of 100.0 mg.
The tablet core total weight is 500.0 mg and has the **following formula:**

Ingredients **Rx**	**%(w/w)**	**Weight in "mg" per tablet**	**Weight in "kg" of each ingredient if you have 100kg of drug "x"**
Drug "x"	**25.0**		
Avicel PH101	**37.5**		
Spray dryed lactose	**31.0**		
Sodium starch glycolate (Explotab)	**3.5**		
Talc powder	**2.0**		
Magnesium stearate	**1.0**		

a) Calculate the weight in "mg" per tablet for each ingredient and **insert in the table above**

b) If you have 100 kg of drug "x" , calculate the weight in "kg" of each ingredient to manufacture this product and **insert the results in the table above**

C) Using the dry granulation method, mention the necessary steps and draw a sketch for each equipment you use before the compression step.

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QIV: .....(15 Marks)

A-Mark each of the following as true by the le!ter (n or false by (F):

1. The tablet thickness can vary even without a change in tablet weight. ( )
2. At constant die fill, the hardness value of the tablets decrease and the thickness increase as additional compression force is applied. ( )
3. NGI can be used for DPIs, MDIs and nublizers applications. ( )
4. Multi-Stage Liquid Impinger is a five stage liquid impinger while Marple-Miller cascade impactor is a six stage cascade impactor. ( )
5. For pediatric applications, the Marple-Miller impactor 150 P, is also available for operation between 6-12L/min. ( )
6. When P3/P2 <0.4, the critical flow is assumed to be stable. ( )
7. The MOC has 80 % collection efficiency, thus in most cases eliminating the needs for a final filter even with ultra-fine particles. ( )
8. 4KP, a pressure drop over the inhaler, is being broadly representative of the pressure drop generated during inhalation by patients using DPIs, MDIs and nebulizers. ( )
9. 60 L/min flow rate needs a short time compared to flow rate of 100 L/min in testing DPs in-vitro. ( )

B- Complete each of the following sentences:

1- The parameters which are important in particle size distribution are:

.....

.....

2- Enumerate 3 disadvantages of sieve analysis.

.....

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3- Give names only for three apparatus used for determination of particle size basing on Stoke's equation:

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.....

.....

4- Mention three advantages of drug targeting to the lungs.

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.....

5-What are the most predominant mechanisms for particles deposition in the lungs.

.....

.....

C- **Write short notes on the following?**

1- Advantage and disadvantages of DPIs:

.....

.....

.....

.....

2- Why the preferred instrument of choice for measuring the aerodynamic particle size distribution is the cascade impactors?

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3- Critical (sonic) flow:

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.....

4- Tablet Hardness:

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5- Define each of the following:

a) Fine particle fraction .

.....
.....

b) Aerodynamic particle diameter .

.....
.....

C) Complete disintegration .....
.....

GOOD LUCK!!!

Assiut University
Faculty of Pharmacy
Pharmaceutics Department

fourth Year Pharmacy students
Elective Course - Radiophamacy
Saturday 9/6/2012

Total Pages = 8 pages - Marks = 60 marks - Time Allowed 2 hours

(All questions should be attempted)

PART 1 (20 marks)

20

I. Answer the following questions: (5 marks)

1. Write briefly about internal conversion.

2- Write on neutron capture or (n, γ) reaction.

3- Draw a diagram to describe the construction of a Moly generator.

II. Give reason(s) for each of the following sentences: (3 marks)

1. There is a minimum radiation exposure of personnel working with a Moly generator.

---

2. For a carrier-free radionuclide sample, the shorter the half-life, the higher the specific activity.

3.The use of short-lived radionuclides has grown considerably.

III. Write the scientific expression described by each of the following sentences:(4 marks)

1. A force that is much stronger than the electrostatic force and binds equally protons and neutrons in the nucleus.
2. Nuclides having the same number of protons and neutrons but differing in energy states and spins.
3. The process by which an atomic nucleus of an unstable atom loses ~nergy by emitting ionizing particles or radiation.
4. The ratio of the conversion electrons (N_e) to the observed y rays (N_γ).
5. Historically, it was initially defined as the disintegration rate of **1** g radium, which was considered to be 3.7 x $\mathbf{10}^{\mathbf{10}}$ disintegrations per second.
6. An alternative to Jl+ decay in which an electron is captured from the extranuclear electron shells, thus transforming a proton into a neutron and emitting a neutrino.
7. A radionuclide that is produced in a cyclotron by the bombardment of ^{111}Cd with a proton.
8. A radionuclide which has a half-life of 66 hr and decays by β- emission; 87% of its decay goes ultimately to ^{99m}Tc.

Answer Sheet

1		5	
2		6	
3		7	
4		8	

IV. Complete the following sentences with appropriate words: (4 marks)

1. $^{131}_{53}I \rightarrow ^{131}_{54}Xe + \overset{(1)}{-----} + \overset{(2)}{-----}$
2. $^{235}_{92}U + ^{1}_{0}n \rightarrow \overset{(3)}{------} \rightarrow ^{131}_{53}I + ^{102}_{39}Y + \overset{(4)}{---}$
3. The size of an atom is of the order of --(5)-- and that of a nucleus is of the order of –(6)-
4. The mass of a nucleus is always less than ----(7)--------in the nucleus. This difference in mass is termed -----(8)-----
5. The α particles are ---(9)--- charged and have relatively ----(10)--- penetration power.
6. ---(11)--- is defined as the time required to reduce the initial radioactivity to one half. It is related to the decay constant λ of a radionuclide by the equation ----(12)--
7. In a decay scheme, the ordinate axis is ---(13)-- (increasing from bottom to top), and the abscissa is --(14)---- (increasing from left to right).
8. The components of the kits used for the preparation of Tc-radiopharmaceuticals include ---(15)--- and --(16)----.

Answer Sheet

1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8		16	

V. Denote (T) for true sentences and (F) for the false ones (and correct them):

(4 marks)

1. Each orbital can accommodate a maximum of (2I + 1) electrons and the total number of electrons in a given shell is $2n^2$	
2. In a chart of nuclides, the nuclides are arranged in increasing proton number horizontally and increasing neutron number vertically	
3. In radioactive decay, particle emission or electron capture may be followed by isomeric transition.	
4. For electron capture to occur, the energy difference between the parent and daughter nuclides is usually higher than 1.02 MeV.	
5. The mean life of a radio nuclide equals the half life multiplied by (14.4).	
6. Specific activity is defined as the radioactivity per unit volume of a sample	
7. To make the high energy neutrons more useful, they are thermalized by interaction with cadmium rods.	
8. The ^{99}Mo radionuclide is one of the useful agents for diagnostic use	

PART 2 (20 marks)

I. Briefly explain the following: (10 marks)

1. Shielding in nuclear pharmacy.

---

2. LAL test.

---

3. Methods of radiolabeling.

---

4. LD50/60

II. Mention: (2 merks)

Mechanisms of localization of radiopharmaceutical in a given organ.

III. Complete the following sentences with appropriate words: (3 marks)

1. The biological tests establish ..... and..... of radiopharmaceuticals.
2. ..... should be stored at 2° to 4° C to prevent any bacterial growth and denaturation of proteins, whereas ..... can be stored at room temperature.
3. ..... in a concentration of ..... is a widely used bactericidal agent in radiopharmaceutical solutions.

IV. Denote (1') for truc sentences and (F) for the false ones: (5 marks)

1. It is unnecessary for a new operator to practise the handling operation prior to working with radioactive material.	
2. Autoclaving is a suitable sterilization method for short-lived radionuclides such as ^{13}N and ^{18}F.	
3. In many cases, lipid solubility of a radiopharmaceutical is a determining factor in its localization in an organ.	
4. Aluminum is a chemical impurity in the ^{99m}Tc-elute.	
5. At a lower pH, plasma proteins become more negatively charged, and therefore cationic radiopharmaceuticals bind firmly to them.	
6. Radiopharmaceuticals prepared by isotope exchange reactions are expected to have different biologic and chemical properties.	
7. The thickness of shielding material necessary for γ-emitters is dependent on the γ-ray energy- the greater the energy, the thinner the shield required.	
8. At a lower pH, plasma proteins become more negatively charged, and therefore cationic radiopharmaceuticals bind firmly to them.	
9. The radiation dose from a radioactive course is directly proportional to the square of the distance.	
10. When ^{111}In ion and DTPA are mixed under appropriate physicochemical conditions, ^{111}In-DTPA is formed and remains stable for a short time.	

PART 3 (20 marks)

I. Answer the following questions: (6 marks)

1. what are the normal values of urinary excretion of ^{57}Co-vitamin B_{12}? What additional test do you do in cases of suspected pernicious anemia?

---

2. Write on the use of radiopharmaceuticals in determination of liver phagocytic function.

---

3. List the most important therapeutic uses of radiopharmaceuticals.

---

4. Draw a full-labeled diagram representing the renogram in normal patients.

II. Write the scientific expression described by each of the following sentences; (6 marks)

1. A process in which the colloid particle is coated with a serum protein to be recognized by phagocytes for ingestion.

2. A hormone endogenously released by the duodenal mucosa after a meal. It increases gastroinlestinal motility and the secretion of bile.

3. A disease that results in delayed excretion of the tracer from the kidney and thus flatten the third segment of the renogram.

4. A pharmacological intervention that can be used to differentiate between kidney functional and mechanical obstructions.

5. A type of lung imaging that indicates the presence of any obstruction in its airways.

6. A common side effect of radiation therapy regardless of which part of the body is treated.

Answer Sheet

1.	
2.	
3.	
4.	
5.	
6.	

III. Using the given list, choose the most suitable radiopharmaceutical described by each sentence (8 marks)

A	^{99m}Tc-MAG$_3$	N	^{99m}Tc-mebrofenin
B	^{51}Cr-labeled red blood cell	O	^{133}Xe Gas
C	^{57}Co-vitamine B12	P	^{131}I-NaI
D	^{99m}Tc- DISIDA	Q	^{131}I-Orthoiodohippurate
E	^{99m}Tc-MAA	R	^{90}Y-Ibritumomab Tiuxetan (Zevalin)
F	^{99m}Tc-albumin colloid	S	Biotinylated Mab
G	^{125}I-RISA	T	^{99m}Tc-HMPAO
H	Heat-denatured ^{99m}Tc-labeled RBCs	U	^{18}F-Fluorodopa
I	^{67}Ga-gallium citrate	V	^{201}Tl-thallous chloride
J	^{99m}Tc-sulfer colloid	W	^{11}C-labeled methylspiperone
K	^{99m}Tc-IDA derivative	X	$^{99m}TcO_4$
L	^{32}P-orthophosphate	Y	^{99m}Tc-Sestamibi
M	^{99m}Tc-DMSA	Z	^{131}In-capromab pendetide

No.	Description	Radiopharmaceutical (use letters from the above list)
1	Can be used lo indicate the presence of any obstruction in lung airways.	
2	It is largely metabolized in circulation by dopa decarboxylase and catechol-O-methyl-transferase.	
3	It is used for the treatment of NHL. It is a monoclonal antibody that combined with a radioactive substance.	
4	It is effective in diagnosing pulmonary embolism, tumor, tuberculosis, fibrosis and other related lung diseases	
5	It is a protetein that can be used for determination of plasma and blood volume.	
6	It is particularly used for diagnosis of breast cancer.	
7	It is used for treatment of hyperthyroidism and thyroid cancer	
8	One of the diffusible tracers that readily cross the BBB	
9	It is currently considered the preferable agent for renal function studies.	
10	Can be used to measure the average survival half-time of red blood cells.	
11	A radioactive gas that is used for diagnosis of emphysema and bronchitis.	
12	It is used for myocardial perfusion imaging	
13	During administration, the position of the patient must be supine for there to be a uniform distribution of the tracer.	
14	It consists mainly of the amino acid glycine and commonly used to construct renograms.	
15	It is used based on its preferential localization in bones. It has been in use for a long time for bone pain therapy.	
16	It is used for the treatment of polycythemia vera. Cases of leukemia have been reported in patients treated with it.	

END of Questions- GOOD LUCK

الامتحان الشفوى عقب الامتحان النظرى مباشرة بإذن الله بقسم الصيدلانيات بمبنى ب الدور الثانى

DR. Ikramy A. Khalil Dr. Hany Salah

Question 1 ***Prof. Dr. Niveen A. Mohamed***

Compelet the following sentences with the missing word(s) (9 marks)

1- Sampling plans consist of a ---------- and ----------

2- ---------- consists of two or more portions of material collected at the same time selected to represent the material being investigated.

3- Quality can be defined as a product or service free of …… and quality control can be defined as …….. of defects, while quality assurance can be defined as …… of defects.

4- Deming cycle is an iterative …… quality ……. is concerned with sampling, specifications, testing, organization, documentation & release, and it is a part of quality …….

5- Sample is a …….. portion selected from the bulk.

6- The samples can be classified according to the sampling plan into 4 types:

7- Quality control units are:

8- …… is the written record (documentation) of the sampling operations and always kept together with the collected sample.

9- …… has produced certifications scheme on the QC of pharmaceutical products moving in international Commerce which is very useful for the important countries.
……

Mark [√] for the correct statement and [x] for the wrong one, underline the wrong words or sentences and then correct it (9 marks)

The statement	Mark	Correction
1- Samples should never be returned to the bulk 2- Sampling tools should be made of active materials, avoid glass 3- Disposable sampling materials cannot be used for sampling 4- Samples from liquid preparations can be classified as heterogenous materials 5- Sample collection form is written record of the sampling operations, always kept together with the corrected form 6- Good manufacture practice is concerned with production only 7- ISO have been released guidelines for sampling of pharmaceutical products 8- Representative samples must be taken in very small quality 9- Karl-Fischer titration method is used for the determination of acids in the compounds in physico-chemical investigation unit		

Question II: *Prof. Dr. Samia El-Gizawy*

All Questions are to Be Attempted: (24 Marks)

I- The following is a list of common errors encountered in research laboratories. Categorize such as a determinate [systematic error] or an indeterminate [random error] (6 Marks)

a) Electronic noise in the circuit of an electrical instrument	
b) You measure the mass of a tablet three times using the same balance and get slightly different values: 17.46 g, 17.42 g, 17.44 g c) A radioactive sample being counted repeatedly without any change in conditions yields a slightly different count at each trial d) The tip of the pipet used in the analysis is broken e) In measuring the same peak heights of a chromatogram, two technicians each report different heights f) The electronic scale you use reads 0.05 g too high for all your mass measurements	

II-A) Radioflavin is determined in a cereal sample by measuring its fluorescence intensity in 5% acetic acid solution. A calibration curve was prepared by measuring the fluorescence intensities of a series of standards of increasing concentrations

The following data were obtained (4 Marks)

Riboflavin (µg/ml)	Fluorescence intensity
0.0	0
0.1	5.8
0.2	12.2
0.4	22.3
0.8	43.3

Calculate:

a- slope
b- intercept
c- correlation coefficient
d- the concentration of sample Riboflavin if the intensity was 15.4.

B) Apply the Q test to the following data sets to determine whether the outlying result should be retained or rejected at the 90% and 95% confidence level (2 Marks)

0.189, 0.167, 0.187, 0.183, 0.186, 0.182, 0.181, 0.181, 0.181, 0.177

This table summarizes the limit values of the test:

Number of values:	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
$Q_{90\%}$:	0.941	0.765	0.642	0.560	0.507	0.468	0.437	0.412
$Q_{95\%}$:	0.970	0.829	0.710	0.625	0.568	0.526	0.493	0.466

III- Encricle the correct answer (4 Marks)

1- …….. the smallest detectable concentration an analytical instrument can determine at a given confidence level:

a) LOD b) LOQ c- LOL

2- …… are errors that affect the precision of a set of measurements:

a) Random errors b) Systematic errors c) Gross errors

3- The term …….. refers to the extent to which a method can determine particular analytes in mixtures or matrices without interferences from other components.
a) Selectivity b) Sensitivity c) Accuracy

4- The picture below provides an example of:

a) poor accuracy and poor precision b) good accuracy and good precision
c) good accuracy and poor precision d) poor accuracy and good precision

5- Revalidation is necessary when:
a) A method is changed b) The sample matrix changes
c) The instrument type changes d) All of them

6- Factors influence the choice of an analytical method:
a) Type and size of the sample b) Analyst experience
c) Conc. range of the analyte d) All of them

7- Systematic errors can be minimized by using:
a) Standard addition method b) Using of internal standards
c) Running blank determination d) One or more of them

8- When sample weighing [mg] > 100 the analytical method is:
a) Meso b) Semimicro c) Micro d) Ultramicro

IV- Write short notes on: **(8 Marks)**

1- Reasons for incorrect analytical results

2- Characteristics of the "internal standard" compound

3- Constant error and proportional error

4- Repeatability / Reproducibility.

Question III: ***Prof. Dr.Pakinaz Khashaba*** **(18 Marks)**

[A] Write the scientific term representing the following statements (2 Marks)

1- Geometric, optical isomers that are mixed with bulk pharmaceutical compounds (……)

2- Compounds introduced by contamination or adulteration and not by synthesis or preparation steps (……)

3- Unplanned compounds produced in the reaction (……)

4- Products of similar chemical structures and biological activity (……)

[B] Physical changes in pharmaceutical products depend upon type of dosage form itself. Mention briefly such changes in the followings: (3 Marks)

1- Suspension:

2- Solutions and emulsion:

3- Ointments:

[C] Complete the followings (5 Marks)

1- Chemicals can be classified depending on their purity to different grades:

a) b)

c) d)

2- Stability indicating assays are necessary to:

a)

b)

[D] Explain the followings using chemical equation: (5 Marks)

1- Sodium metabisulfite ($NaHSO_3$) is incompatible with catecholamines in solutions for injection.

2- Exposure to UV radiation may cause various degradation reactions.

[E] In QC lab if you are asked to develop a stability indicating assay for the degradation product of aspirin. Explain by chemical equations only the selected method. (3 Marks)

تعليمات هامة

- √ كراسة الإختبار تتكون من ثلاث عشرة صفحة تحتوي علي ثلاث أجزاء رئيسية بالإضافة إلي صفحة التعليمات.
- √ الإمتحان عبارة عن أسئلة متنوعة ما بين أسئلة إكمال المطلوب والإختيار من متعدد وأسئلة أخري تتطلب الاجابة حسب المطلوب (كأسئلة كيف يمكن تحضير مركب – تحليل مركب ... إلخ).
- √ جميع الأسئلة إجبارية وتكون الإجابة في المكان المحدد لها فقط.
- √ في أسئلة الإختيار من متعدد توضح الإجابة بدائرة حول الحرف الدال علي الإجابة الصحيحة وفي أسئلة إختيار صح أم خطأ توضع العلامة أمام الحرف الدال علي الإجابة.
- √ الإلتزام بالتعليمات العامة للإختبارات من حيث الإجابة بالقلم الأزرق فقط ولا يستخدم القلم الرصاص.
- √ الإختبارات الشفهية يوم 2012/6/13م فقط عقب الإمتحان النظري مباشرة.

مع أطيب الأمنيات من قسم الكيمياء الطبية بالنجاح والتفوق

أ.د. حسن حسن فرج

أ.د. محمود محمد شيحة

د. جمال الدين صابر القرماني

Part No.: ONE 27

***I)* Mention the eight stages of solution based peptide synthesis**

(2 points)

1) .....

2) .....

3) .....

4) .....

5) .....

6) .....

7) .....

8) .....

II) A) Fmoc is the abbreviation of .....

B) Mark the correct answer(s) for the following:

Fmoc role on peptide synthesis is;

a) As an activating group

b) As protecting group for COOH

c) As condensating agent

d) protecting group for NH_2

(1.5 points)

III) Desmopressin is chemically.....vasopressin, and it is (mark the correct answer(s))

a) An antagonist of vasopressin

b) Less active than vasopressin

c) Has no vasopressin activity

d) Non of the above but .....(1.5 points)

IV) A) Complete the following table: (6 points)

	Chemical name	Structure	Use
1	6-Methylthiouracil Generic name:.....		
2	N-phenethylbiguanide Generic name:.....		
3	1-Butyl-3-p-tolylsulfonylurea Generic name:.....		

B) Give a method of <u>SYNTHESIS of ANY ONE</u> the above compounds (1.5 points)

C) Give a method of ANALYSIS of ANY ONE the above compounds

(1 points)

V) Complete the following **(1 *point)***

Disulfide linkage is an essential structural feature in some peptide hormones, as in the case of .....which has a disulfide bridge between ..... and .....

VI) Mark the correct answer(s) for each of the following; (1 point each)

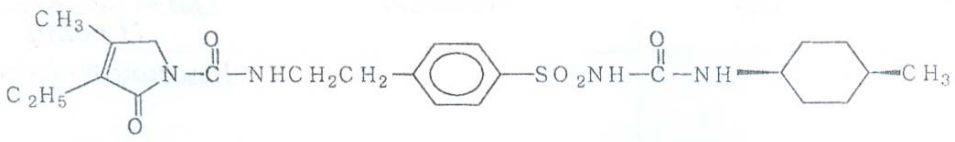
1) Insulin preparations that contain a modifying protein include;
   a)Lent insulin
   b)Regular insulin
   c)Isophane insulin (NPH)

2) Tertiary structure of polypeptides may be stabilized by;
   a)Ionic forces
   b)Covalent forces
   c)Hydrophobic forces
   d)Hydrogen bonding
   e)All of the above

3) Activity and duration of action of T 4 and T 3 are affected by;
   a)Number of iodine atoms
   b)Angle between a- and P- rings
   c)Position of iodine atoms
   d)L-configuration of the amino acid residue
   e)All the above

4) Substitution of Met^{8} by Val^{8} and Phe^{22} by Tyr^{22} in Calcitonin results to
   a)Agonist with longer duration
   b)Agonist with higher activity
   c)Antagonist
   d)Loss of activity

VII) The generic name of the following compound is .....



And is used as ..... Its high activity is due to

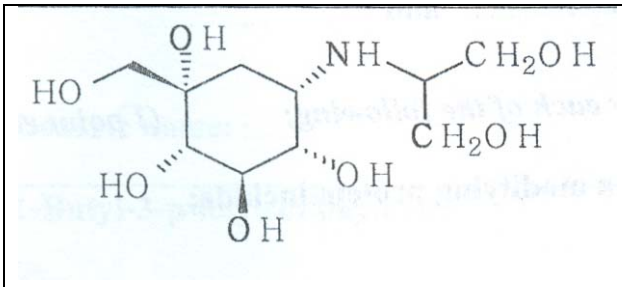
.....

.....

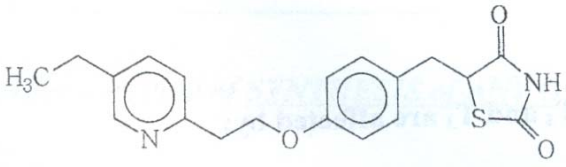
.....

(1.5 points)

VIII) a) Mark the correct answer(s) and give its generic name (1 point)

	I) Is effective orally II) Hyperglycemic III) Used for obesity Generic name: .....

b) Complete the following ***(1 point)***

	Generic name: ..... USE: ....

IX) Draw the structure, give the generic name, and a method of synthesis of any one of antithyroids (2.5 points)

X) Discuss the structure activity relationships of Thyroxin. (2.5 points)

.....

.....

.....

.....

.....

.....

.....

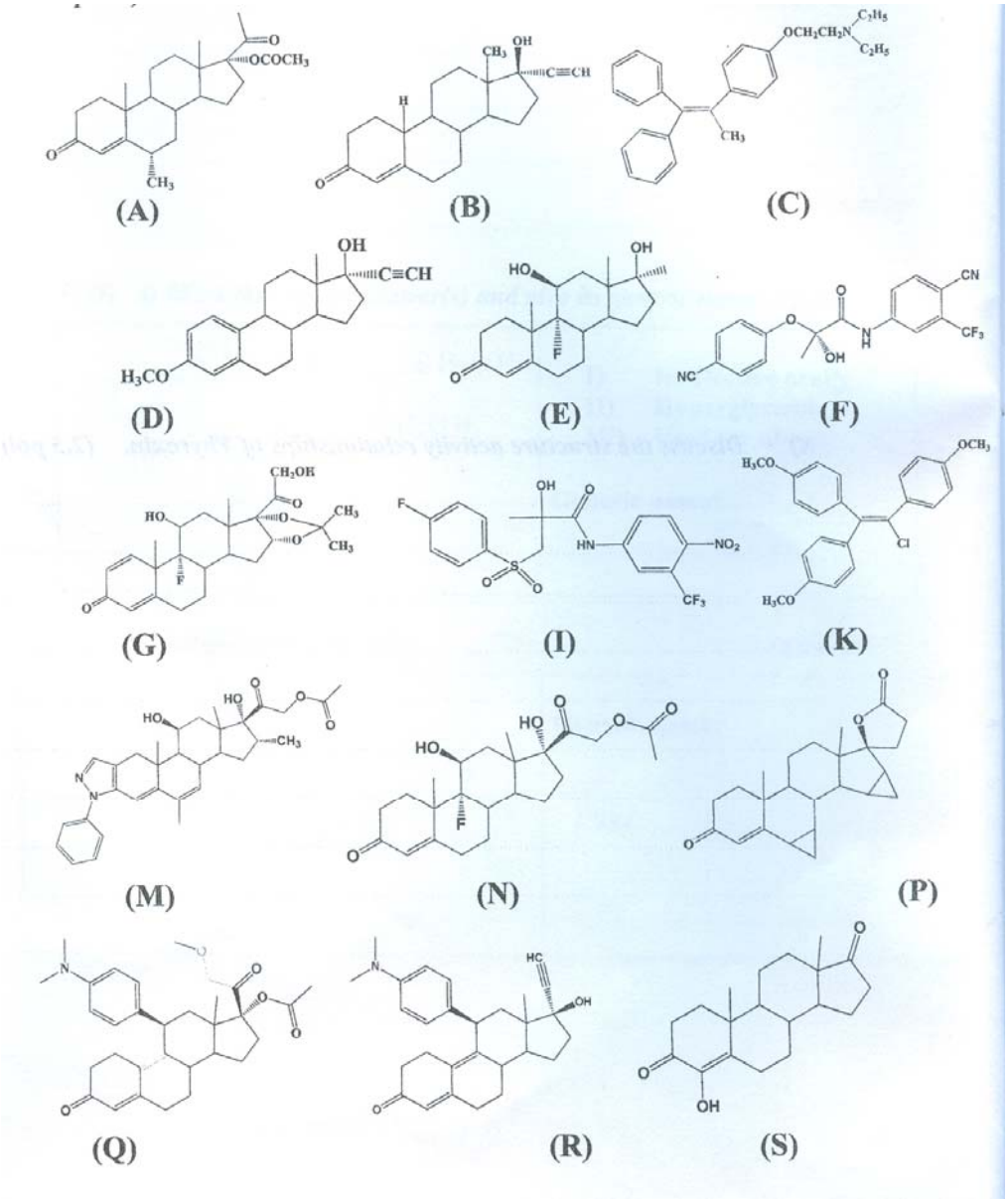
.....

.....

23

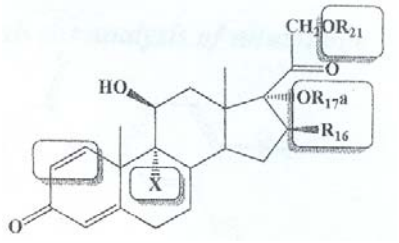
Part No.: TWO

I- Fill the spaces in the table by the corresponding compound number (14x0.5 points)



Biological activity	Compound(s) Number
Anti-inflammatory steroidal prodrug	
Postcoital progesterone receptor blockers	
Aromatase inhibitor	
Orally active non-steroidal estrogen	
Mineralo-corticosteroid drug	
Selective progesterone receptor modulator	
Non-steroidal androgen	
Estrogen receptor blocker	
Androgen receptor blocker	
Progesterone prodrug	
Synthetic progestin with anti-androgenic activity	
Orally active steroidal estrogen	
Orally anabolic androgen	
Nor-testosterone with Progesterone activity	

II. Illustrate the role of the assigned groups on glucocorticoid / mineralocorticoid effects of the following corticosteroid (6x0.5 point)



a. C_1-C_2 double bond .....

b. When X = F .....

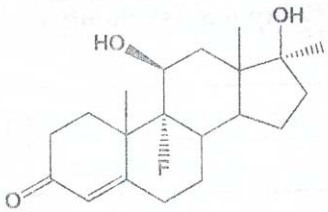
c. When R_{16} =H; R_{17a}= OH .....

d. When R_{16} = R_{17a} = H .....

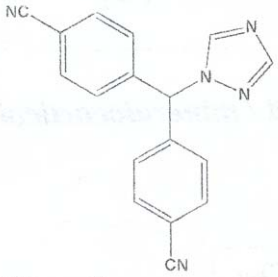
e. When R_{17a} = COC_3H_7; R_{21} = H .....

f. When R_{17a} = H; R_{21} = COC_3H_7 .....

III. Draw scheme for synthesis of BOTH Drugs 1 & 2 (4 points)

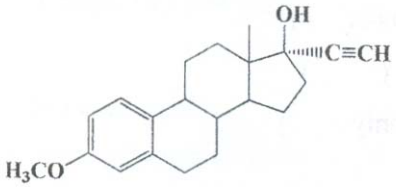


(Drug 1)

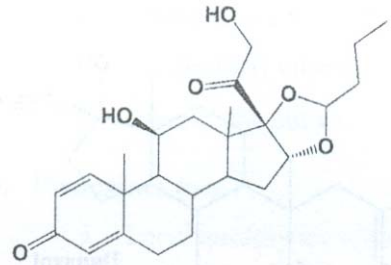


(Drug 2)

IV. Draw possible metabolic products of BOTH steroidal drugs (A & B) showing relative biological activity compared with parent compound (4 points)

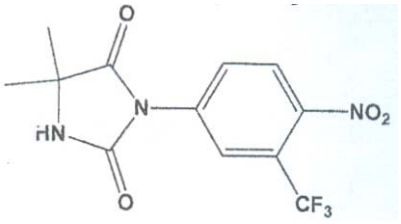


(Drug A)



(Drug B)

V. Outline <u>TWO</u> different methods for analysis of nilutamide (2 points)



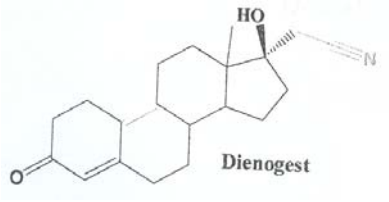
VI. ***Assign (T) for true and (F) for false for the following sentences* (4 *x 0.5 point)***

1. Estrogenic and anabolic androgens drugs are found as steroida1 and nonsteroidal compounds ( )
2. Removal of C-19 reduces androgenic and increase anabolic of testosterone ( )

Steroidal drugs are substituted at C-17 to avoid systemic metabolism ( )

3. All Progestins have 21 carbon atoms but all estrogens have 19 carbons only ( )

VII. Select the correct answer:* (2 *x 0.5 point)



1. Dienogest is a fourth generation progestin with:

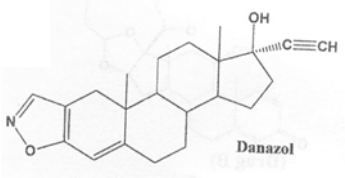
a.Antimineralocorticoid and antiandrogenic activity

b.Antiandogenic and antiglucocorticoid activity

c.only antiandrogenic activity

d.only anticorticosteroid activity

2. Danazole is synthetic steroidal hormone analogue ..



a.Has progestin activity and used for treatment of endometriosis

b.Has weak androgenic and good anabolic activity

c.Used orally as antigonadotropic agent

d.Has good orally bioavailability due to isoxazole ring

Part No.: THREE _____ 20

I. Assign (T) for true and (F) for false for ALL of the following choices (5xl.5 points)

1. Benzocaine is

a. Ester type local anesthetic ( )
b. Reversed amide type local anesthetic ( )
c. Local anesthetic ( )
d. Amide type local anesthetic ( )

2. Thiamine hydrochloride is

a. Competitively inhibited by oxythiamine ( )
b. Unstable in acidic solution ( )
c. Antiberiberi vitamin ( )
d. None of the above ( )

3. Pivacaines are

a. Local anesthetics with rapid onset of action and longer duration ( )
b. More safe than lignocaine ( )
c. Piprazine-caeboxamide derivatives ( )
d. Pepridine-carboxamide derivatives ( )

4. Vitamin C is

a. Stable in aqueous solution ( )
b. Used as antioxidant ( )
c. Used as anticancer supportive therapy ( )
d. Neutral in aqueous solution ( )

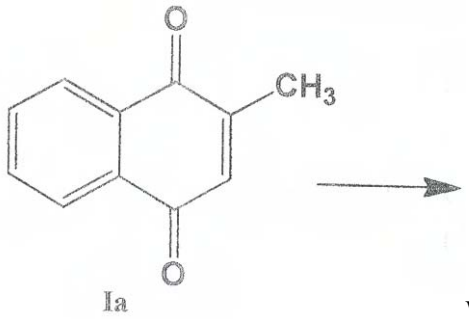
5. Niacin is

a. Metabolized by N-methylation ( )
b. Used as antipellagra agent ( )
c. 3-pyridinecarboxylic acid ( )
d. Prepared by oxidation of nicotine ( )

II. Draw the scheme for synthesis of lidocaine (3 points)

III. Outline schematic procedure/or determination o/thiamine in aqueous solution (3 points)

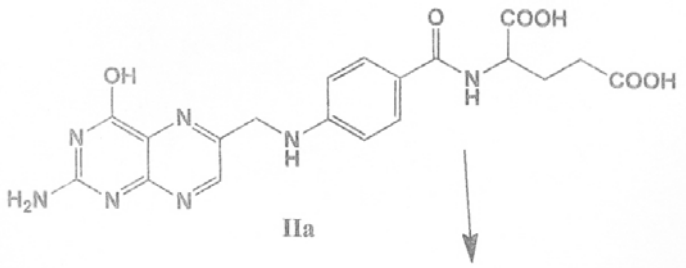
IV. Modify the structural formula of the following compounds to obtain analogues with indicated properties (draw their structure and mention their generic names)



Ia

Water-soluble analogue Ib

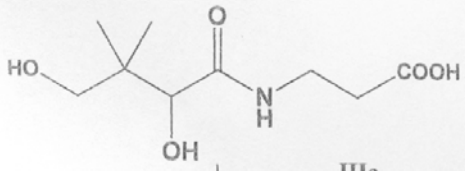
Generic name: ..... *(2 points)*



IIa

Antimetabolite IIb

Generic name: ..... *(2.5*



IIIa

Antagonist analogue IIIb

Generic name: ..... *(2 points)*

Assiut University | fourth Year Final Exam
Faculty of Pharmacy | Time allowed: 2 hours
Alternative medicine | Date: 9/6/2012

All question are to be answered **لاحظ أن أسئلة الامتحان فى سبع صفحات**

1- Complete the following sentences with suitable words (write your answers in <u>table below</u>): (10 marks)

* .....1..... can help to protect liver
* .....2..... used for its immune enhancing properties
* .....3..... caused by .....4 ..... of oestrogen
*Castor oil considered as .....5..... while ....6 .....used as lubricant laxative
* .....7.....is a functional impairment of the colon in producing proper form stool at regular interval
*Fever, painful muscles, abdominal discomfort, loss of weight, loss of appetite and jaundice are signs of .....8 ... .
* ....9 .....caused by contaminated food and water ~
* .... 10 ...used as anti-allergic, demulcent, expectorant and to mask the bitterness of the drugs

1	6
2	7
3	8
4	9
5	10

II- Put mark (√) for the correct statement and (x) **for the false one in <u>the table below:</u>** (15 marks)

1- Atropine used as mydriatic, antispasmodic and decrease salivary secretions.

2- Caffeine is a potent CNS depressant.

3- Expectorants thin the mucus that blocks air tubes leading to the lungs.

4- Khellin used in treatment of angina pectoris.

5- Lignans inhibit uterine cancer cells growth

6- Ephedrine acts as broncho-dilator.

7 - Diet with low of saturated fatty acids prevent the ypercholesterolemia.

8- Green tea containing catechins which increase the absorption of cholesterol from intestine.

9- Cough suppress ants used when the cough is wet.

10- Cymbopogon herb used as antispasmodic, antihypertensive and bronchodilator.

11- Pilocarpine and isopitocarpine are miotic natural products.

12- Garlic used as antihypercholesterolemia.

13- Hepatitis Band C are caused by contaminated foods and water.

14- Silymarin possesses hepatoprotective action.

15- Hypericum is used in treatment of seasonal effective disorders.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

III- Answer the following (5 marks)

1- Types of laxatives

2- obesity and its causes

IV - Choose the correct answer <u>and write it in the table below</u>

(5 marks)

1- Using a special diet to treat cancer instead of undergoing surgery, radiation, or chemotherapy is ----------medicine

A)alternative B)complementary C) conventional D)all of above

2- Homoeopathic remedy 2C is a mother tincture dilution

A)l in 100 B)l in 1000 C)l in 200 D)l in 10,000

3- Qi (vital force) f10ws through the body via channels called-----

A)miridians B)Ama C)Dosha D)vata

4- Do not spend more than ---------- minutes at a time in a sauna

A) 45 to 50 B)15 to 20 C)10 to 15 D)30-35

5- Weight gain is due to imbalance in ---------- dosha

A)Pitta B)kapha C)vata D)non of above

]6- ----------acupuncture is needling areas that were identified as non-acupuncture points

A)control B)sham C)Chinese D)false

7 - The diameter of acupuncture needle mostly common used is ---------

A) 0.25 mm B) 0.5 mm C) 0.75 mm D) 0.15 mm

8- Applying oily medium to skin and then use spoon or other utensil to scrap along the skin surface is----------

A) Pulm blossom needling B) Tui na C) Gua sha D) Moxibustion

9- f1ax seeds contain ----------that have structural similarity to oestradiol

A) Alpha linolenic acid B)f1avonoids C) lignans D)alkaloids

10- Plant stanols used to decrease

A)blood sugar B) platelets aggregation C)blood pressure D) cholesterol level

1	2	3	4	5	6	7	8	9	10

V- 1-Glucosinolates decrease activation of pro-carcinogens and increase their excretion

a)Explain this statement? ---------- (2 marks)-

---

b) Complete the table below (3 marks)

Name of glucosinolates	Hydrolytic product	Biological source

2- Researches shown that people in Asian countries consuming soy products regularly, have lowest incidence of breast, prostate and colon cancer

(5 marks)

a) This type of research is called ----------

b) Soy products contain isoflavonoids as---------- and ----------
isoflavones which have structure similarity to the----------

c) Draw the structure of these two isoflavonoids

d) Explain two mechanisms of action for cancer prevention of soy isoflavonoids (other than that stated in (b))----------
---

VI- Complete the following sentences (15 marks)

1-The conditions that treated most frequently by homeopathic physician are----------
----------and----------

2-_Qi (vital force) flows through the body via channels, the most well known channels are ---------- in number and distributed----------, Foot greater yin spleen channel from the name of channel you can expect that----------
----------, ---------- and ----------

3- Clinical researchers reported that inserting acupuncture needles into specific body points triggers the production of ----------which block pain, other Scientists believe it is this mechanical manipulation of the ----------tissue that stimulates the body to respond and release----------and ----------

4- Moxibusti on is ----------

5- Omega 3 fatty acids as ---------- present in linseed and ---
---------- and ----------present mainly in fish, they are the major component of ----------and----------
tissues. Omega 3 fatty acids are protective against----------by decreasing ---------- and ----------

6- Some researches show that post operative hydrotherapy more effective than land-based for ----------of patient with ---------- disruption

7- Ayurvedic physicians remove toxins (*ama*) from different areas of the body by ----------and---------- this part of treatment called ----------

8- Ayurvedic physicians use different herbal medicines for treatment of arthritis as----------and----------and advice his patient to avoid----------foods and advice him to----------

9- *shirodhara technique* used by ayurvedic physicians for treatment of ----------

ملحوظة:

امتحان الشفهى عقب امتحان النظرى مباشرة

مع أطيب التمنيات بالنجاح

أ.د. مقبول احمد مقبول

د. سعاد عبد اللطيف حسن

Prof. Dr. Mohamed Ali Attia, Prof. Dr.ElSayed Ali Ibrahim, Dr. Hany Saleh Mohamed Ali

First Question

23 Marks total

A. Answer the following questions. (10 Marks, 2 marks/point)

1. One of the responsibility of the clinical pharmacist is the drug information. What are the sources of information.

2. Medication errors occur in children are greater than in adults, what are the causes of that.

3. What is the spectrum of consequences of drug metabolism.

4. What are the factors which affecting gastric emptying rate.

5. What are the abnormalities commonly observed during chronic treatment with anticonvulsant drugs.

B. Give reasons for each of the following situations: (13 Marks, one mark/point)

1. Aspirin absorbed more rapidly from buffer alkaline solution than unbuffered.

2. Concurrent administration of Phenobarbital with warfarin increase the risk of thrombus formation.

3. Studying food- drug interactions.

4. Reduction of G.I. absorption of vitamin A, if administered concurrently with Neomycin.

5. The rate and extent of absorption of some drugs are increased in newborns.

6. Reduction of iron absorption in geriatric patient.

7. Percutaneous absorption of the drug is significantly enhanced in infants & children.

8. The reduction of plasma protein binding of salicylates in neonate compared with adults.

9. A higher incidence of ADRs for women in comparison to men.

10. The plasma clearance of Ampicillin which is largely eliminated by renal s about 50% greater in pregnant women than in non-pregnant women.

11. Increase of plasma clearance of phenytoin in pregnancy than in non-pregnancy

12. In patient with liver disease increases the risk of bleeding with anticoagulants

13. Increase the absorption of sulfadiazine by Magnesium hydroxide.

(Prof. Dr. Elsayed A. Ibrahim)

Total marks= 24

All questions are to be answered.

I- For each of the incomplete-statements cited below ONLY ONE completion of those given is wrong. Choose the wrong one among those follow each statement. (7 marks)

1- Benign tumors arc characterized in that they;

a- can grow very large and press on healthy organs and tissues.
b- can grow into (invade) other tissues.
c- are almost never life threatening.

2- Radiation therapy for cancers is;

a- not useful against cancers of the head and neck.
b- not useful against cancer that has already spread to distant parts of the body.
c- considered as a local treatment because only cells in and around the cancer are affected.

3- Autologous or allogeneic stem cell transplant has been used;

a- mainly in hematological malignancies such as myeloma. lymphoma. and leukemia.
b- to allow for higher doses of chemotheraputic agents.
c- to allow for lower doses of chemotheraputic agents.

4- Cytoprotectivc drugs;

a- are used to reduce adverse effects of cytotoxic drugs
b- are used to treat or prevent all toxic effect of cytotoxic drugs
c- may have adverse effects of their own.

5- The success of chemotherapy increases when;

a- given as combination chemotherapy.
b- given in the late stage of the disease.
c- the tumor is easily supplied by the blood.

6-Individuals at risk of coronary heart disease (CH D) could show;

a- high TC
b- high HDL-C
c- high ratio of TC:HDL-C

7- For practical purpose the following values are considered ideal serum lipid profile;

a-Total cholesterol. Te < 5.0 m mol/l ≡<200 mg/dl.
b- LDL-cholcstcrol. LDL-C <3.0 m mol/l ≡ < 100 mg/dl.
c- HDL-cholesterol. HDL-C<0.9m mol/l ≡< 40 mg/dl

8 - The choice of lipid lowering agents depends on;

a- the underlying dyslipidaemia.
b- the response required.
c- the patient's age.

9 - Methadonc is an opioid amllgesic which has a number of unique characteristics that includc;

a- consistent pharmacokinetics among different individuals.
b- longer administration intervals
c- excellent oral and rectal absorption.

10- Tramadol which has analgesic effect comparable to morphine;

a- should not be used if there is a history of addiction or convulsions.
b- its action is probably through stimulation of noradrinaline uptake and inhibition or serotonin release at nerve synapses.
c- is less respiratory depressant than other opioids.

11- Dyslipidaemia is a term that expresses abnormalities in concentrations of circulating lipids in blood that encompass

a- hyper cholesterolaemia.
b- hyper low-density lipidaemia.
c- hyper high-density lipidaemia.

12- Chronic pain has distinct characteristics as;

a- usually it is a part of more complex situation.
b- it tends to be circular in nature.
c- usually it is accompanied with physical signs and symptoms.

13- Morphine is the prototypical opioid and is

a- generally the treatment of choice for chronic severe pain.
b- exerting its action primarily by stimulation of the mu opioid receptors.
c- having a ceiling analgesic effect.

14- The risk of dcveloping coronary heart diseases is increased in individuals with elcvated scrum concentrations of

a- high-density lipoprotein cholesterol.
b- total cho k'slero t.
c- low-density cholesterol.

III-Mark (T') for the true and (F) for the false statement in the following. (14 marks)

( ) 1- Prostaglandines are synthesized at the site of injury by the action of the enzyme cyclooxygenase to inhiit pain sensation by nociceptors

( ) 2- Myelin is a protein-like substance forming a sheath around the axon of certain nerves and allows for enhanced transmission of stimuli-

( ) 3- Stimulation of Kappa receptors produces analgesia without respiratory depression.

( ) 4- The pain threshold for "second pain" is uniform from one person to another

( ) 5- Paracetamol causes a dose dependent hepatotoxicity.

( ) 6- Aspirin is H safe analgesic to be prescribed to breast- feeding mothers.

( ) 7- Triglycerides are the main component of very low density lipoproteins.

( ) 8- High-density lipoprotein-cholesterol levels more than 0.9 m.mol/l are associated with increased coronary mortality.

( ) 9- Paracetamol can be used to compete pain and pyrexia in pregnancy.

( ) 10- The choice of lipid lowering agents depends on the patient's age.

( ) 11- The risk of developing coronary heart diseases is increased in individual with elevated scrum concentrations of low density lipoprotein cholesterol.

( ) 12- Patients with type-2 diabetes show serum levels which indicate decreased triglycerides

( ) 13- Acute pain is linear, has a positive meaning and often associated with physical signs.

( ) 14- Tramadol is considered as the suitable analgesic for use at first step of analgesic ladder.

( ) 15- acetylcholine and γ-amino butyric acid inhibit firing of nociceptors.

( ) 16- Somatic pain is often described as tingling, numbing, lacinating, electrical jolting or shooting.

( ) 17-Paracetamol is the first-choice analgesic for relief of sever pain.

( ) 18- Most cancers form tumors, but not all tumors are cancerous.

( ) 19-Palliative surgery can be used to correct a problem of cancer that is causing discomfort or disability to the patient.

( ) 20-Radiation usually works on cells that are actively or quickly dividing.

( ) 21 -Radiation works by breaking a piece of the DNA molecule inside the cancer cell which Keeps the cell from growing and dividing.

( ) 22-Like chemotherapy, radiation therapy is usually a local treatment.

( ) 23- Most commonly, chemotherapy acts by killing cells that divide rapidly.

( ) 24-Chemotherapy kills cancer cells that may have spread to other parts of the body from the original tumor.

( ) 25- Chemo is oftcn not used along with surgery or radiation therapy .

( ) 26- Chemos may themselves be carcinogenic.

( ) 27- The main purpose of isolated infusion approaches is to deliver a very low dose of chemotherapy to tumor sites to reduce systemic damage.

( ) 28-All specially-targeted delivery vehicles aim to increase the maximum effective dose that can be delivered to the tumor cells.

III- Give a reason for each of the following: **(3 marks)**

2- Prostaglandines and leukotrienes are considered as pain mediators.

3- The overweight patient is at increased risk of atherosclerotic disease.

4- Aspirin can not be prescribed as analgesic for patients receiving anticoagulant drugs.

With Best Wishes
Elsayed A. Ibrahim

PART III

Part III, Instructor Dr. Hany Saleh Mohamed Ali (23 marks in 3 pages) Total mark

1- Write briefly on (8.5 marks):

A. Extra intestinal complications and associations of Inflammatory Bowel Diseases (3 marks)

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B. Paracetamol-induced hepatotoxicity (3 marks)

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C. The sequential approach to the management of cirrhotic ascites (2.5 marks)

PART III

2- Complete: (6.5 marks, 0.5 mark/completion)

1-People with Gilbert's syndrome have a reduced level of.....

2- .....is a monoclonal antibody against.....
.....and licensed for treating severe
..... disease

3- The mechanisms of drug-induced hepatic damage can be divided into .....
(type A) and ..... (type B) hepatotoxicity

4- For patients admitted for procedures requiring general anesthetics, ... appears to be safe as no reports of cross-hepatotoxicity like .....

5- Cytotoxic damage of liver cells may be further classified ..... or
.....

6- Sulfasalazine consists of ..... diazotized to .....
.....

7- Percutaneous cholangiogram is a radiologic technique used to visualize the anatomy of
.....

3- Denote (T) for true or (F) for false sentences: (5 marks)

1- Anti-Sacchammyces cerevisiae antibodies (ASCA) are more likely to be present m Crohn's disease.	
2-The risk of acute liver injury with co-amoxiclav is approximately six times that of amoxicillin	
3-Inf1ammatory bowel disease patients often develop microcytic anaemia because of malabsorption and chronic blood loss.	
4-The LFTs may take many months to return to normal values after withdrawal of the hepatotoxic agent	
5-Metronidazole is eHcctive to treat sepsis associated with fistulae in ulcerative colitis	
6-Intrinsic hepatotoxicity is predictable and dose dependent	
7- The use of aminosalicylates in Crohn's disease is well established	
8- Surgical treatment is highly valuable in treatment of Crohn's disease	
9- Mesalazine is stable in acid medium and rapidly absorbed from the GIT	
10-Budesonide is less effective than conventional corticosteroids in inducing remission in active Crohn's disease, but has fewer side effects than prednisolone	

PART III

4- Give Reason for the following (3 marks)

*Naloxone can be used to in management of liver disease.

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* Special formulations are needed to deliver mesalazine

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Good luck, Dr Hany Saleh

	4th year Pharmacy Students Applied Pharmacognosy Final exam Date, 22/6/2012	
Assiut University	Time allowed: Two hours	Faculty of Pharmacy

All questions should be answered.

Question I:-

A- Mark the correct answer(s) with (√) in the following statements. (4.5 Marks)

1- Macro and microelements are required groups in tissue culture media for:
a- Protein and cell wall synthesis.
b- Growth inhibition
c- Enzymes functions
d- Both a and c
e- All of the above.

2- Explant is:
a- Piece of tissue put into culture
b- Tissue selection depends on purpose species and other factors
c- Piece of organs as leaves, stems, roots, cot. and embryo.
d- Specific cell types of leaf tissue, embryo, pollen and endosperm
e- All of the above
f- None of the above

3- Sterilization of materials in tissue culture is important due to;-
a- Presence of the carbon source (sugar- succrose) in the medium
b- Contamination of the medium affect the growth of the callus.
c- Increase the metabolites in the culture.
d- Inhibit the action of antibiotics.
e- All of the above.
f- a and b

B- Complete the following :- (4.5 Marks)
Culture parameters that affect the growth and production of secondary metabolites in tissue culture are:
1-.....
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2-.....
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3-.....
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4-.....
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5-.....
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6-.....
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C- Write briefly on the application of plant tissue culture for the production of medicinally active secondary metabolites.
(6 marks)

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Question II: (15 Marks)

Complete the following:

1- Determination of moisture content in a sample of mucilage isolated from Plantago seeds is best done by.

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.....

2- Numercal values are

.....

.....

..... and are used in

.....

.....

3- Digitalis leaves should be stored in

.....

.....

4- Contamination of herbal drugs with fungi result in the presence of toxic compounds known as .....and their presence is detected by .....

.....

5- Determination of anthraquinons in a sample of powdered Senna leaves is don by

.....

.....

Question III:

A- Give the reason (s) for the following (21 Marks)

1. Eucalyptus herb for respiratory allergies.

2. Using barberry for treating nasal drip.

3. Ginkgo herb should not be used with aspirin or Coumadin

4. Ginseng should not be used if you are taking prescriptions for high blood pressure.

5. Valerian herb should not be taken with alcohol or valium.

6. Goldenseal plant not used as treatment for those taking antihypertensive medications.

7. Ginkgo biloba should not be mixed with warfarin or asperin •

8. Aloe vera latex should not be used with cardiac glycosides or thiazide diuretics.

9. Hawthorn should never be taken with lanoxin (digoxin).

10. Temperature - programmed GLC Is usually done • using a flame ionization detector not thermal conductivity detectors.

11. Uses of HPlC in separation of components of a mixture.

12. Chemical derlvatlzatlon Is needed In gas chromatography technique.

13.Using Chamomile herb as anti-respiratory spasm

14.Using peppermint in GIT as carminative.

B- Complete the following. (2 Marks)

1. The calamus has a powerful tonic effect on .....

2. Bitter herbs used medicinally to stimulate ..... and ..... secretion.

3. Thyme has a significant ..... And .....effect in conditions of the upper respiratory passages.

4. Relaxing expectorants like mullein acts by reflex to soothe .... and loosen .....

III-C- State true (√) or false (X) and correct the wrong statement of the following. (17 Marks)

1. Vincristine sulphate is used in treatment of Hodgkin's disease.

2. Goldenseal has no effects on anti-arrhythmic drugs treatment.

3. Curcumin or quercetin may be used with anticoagulents.

4. Coriander may be used safely with oral antidiabetic agents.

5. Ephedra may be used along with antidiabetic agents.

6. Angelica herb contains alkaloid constituents and hence used with warfarin.

7. Foenugreek seed can be used as GIT herb.

8. Electron capture detector used for analysis of halogenated compounds.

9. Good stability and reproducibility are not considered as ideal characters of detectors.

10. Flame ionization detectors are not sensitive consequently can not detect down to $10^{-5}\mu g$.

11. Temperature programmed GlC gives no improved separation.

12. Thermal conductivity detector is more sensitive than flame ionization detector.

13. The thermal conductivity detectors are not universal and destructive detectors.

14. The nitrogen phosphorus detector is used for detection of chlorinated pesticides.

15. Preparative gas chromatography can not be used to separate large amounts of closely boiling materials.

16. The main reason for derivatization is to increase the volatility and decrease the polarity of the compounds.

17. ln gas chromatography, the elution time and resolution of analytes are highly dependent on the temperature of the column.

Assiut University	Mid Year Exam
Faculty of Pharmacy	Time allowed 90 m.
Dept. of industrial Pharmacy	24.11.2012

1- Complete the following with appropriate Answers:

1- The factors affecting the rate of heat transfer are:

a- .....

b- .....

c- .....

Thus fouriers'law states that

.....

Write dawn the law and define symbols

2- In pharmaceutical industry steam is used as a heating medium because:

a- .....

b- .....

c- .....

d- .....

e- .....

f- .....

3- The differences between the standard type and the basked type evaporators are:

a- .....

b- .....

c- .....

4- The multiple effect evaporator is used when .....
.....

5- When the vapor raised from an evaporator is organic in nature it is condensed by ..... while when this vapor is aqueous in nature it is condensed by .....

6- The steam jet ejector is used for .....

7- The idea of fluidization in pharmaceutical technology is .....
.....
..... Three equipment are invented based on this idea which are: .....
.....

8- The shape of the product dried by the drum dryer is .....
while the shape of the product dried by the spray dryer is .....
while the shape of the product dried by the lyophilizer is .....

II) Mark each of the following as true or false and correct the false statement

1- NGI can be used for DPIs, MDOs and nublizers applications.

( )

2- Practical size distribution reflects the particle polydispersity.

( )

3- Coulter counter based on weight diameter while Andreasen pipette based on sedimentation diameter.

( )

4- Weight diameter is very important in case of orally administered drugs.

( )

5- The simplest mean of describing the particle size distribution is the frequency size distribution curve.

( )

6- Median and average particle size are parameters which are important in particle size determination.

( )

7- DPIs demonstrate more dosing reproducibility than MDIs.

( )

8- NGI, ACI and MMI require the use of preseparator during aerodynamic sizing.

III) What is the function of each of the following:

A) Coating of plated and cups of ACI and NGI?

B) Mercury and electrodes in coulter counter?

IV- Draw neat sketch for a model of a spray dryer.

Assiut University
Faculty of Pharmacy
Pharmaceutics Dept.

Pharmacy Practice periodical Exam
Fourth year Students
1st Semester 2012/2013

Time allowed 1hr. 19/11/2012

Total marks = 15 marks

Part 1. Prof Dr. Elsayed Ali Ibrahim (4 marks)

Mark ((T) for the true and (F) for the false statement in the following and rewrite the true forms of those are considered false by you. (1/4 Mark for each).

1-Oral medroxyprogcstcrone (Provern) has shown benefit in treating patients with pain due to cndometriosis, or primary dysmenorrhea.

2- With the start of each menstrual cycle, follicle-stimulating hormone (FSH) that is produced from the hypothalamus stimulates several follicles in the ovaries to mature over a two-week period until the egg nearly triple in size.

3-At final menses estradiol level is at 5%) more than during reproductive years.

4-The hypothalamus (an area in the brain) controls the reproductive hormones through producing follicle-stimulating hormone (FSH) and luteinizing hormone (LH).

5-Primary amenorrhea occurs when periods that were previously regular stop for at least three months.

6-Nonsteroidal anti-inflammatory drugs (NSAIDs) are effective in regulating periods in women with menstrual disorders, including menorrhagia, dysmenorrhea, and amenorrhea.

Give a reason for each of the following: *(1/2* Mark for each)

I-Extreme weight loss and eating disorders are common causes of amenorrhea in adolescent girls

2-lnjections of the progestin called mcdroxyprogesterone (Depo-Provera) should not be used for longer than 2 years

3-ln general, women should be concerned when periods come fewer than 2 1 dayes or more than 3 months apart, or if the periods last more than 10 days.

Part 2. Prof. Dr. Tahani Elfaham (4 marks)

1- Tick (√) for right and (x) for wrong sentences, and justify your answer .(2marks)

a-Clinical trials are performed to establish incidence of drug - induced skin adverse effects. ( )

.....

b- An urticarial rash is referred to as (hives) or nettle and may be acute or chronic **( )**

……

c-Pharmaceutical care is episodic or circular in nature ( )

.....

d- .In ranking drug therapy problems ,we start with easier problems to save time ( )

2-Comment on the following: (2marks)

a-Topical steroids and occlusive dressings are used to treat pruritus

.....

.....

b-In therapeutic regimen planning process, inactive problems may be considered.

.....

.....

Part 3: Dr. Khareeb Abdelaal (3.5marks)

1- Good communication between the patient and the pharmacist is beneficial for both of them. State these benefits to the patient.

.....

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.....

.....

Part 4:Dr. Mahmoud Fahmy (3.5marks)

1- Enumerate the common diseases and disorders of the outer ear,

.....

.....

2- Discuss briefly, Otitis media

.....

.....

Causes .....

.....

Complications .....

.....

Treatment .....

.....

Assiut University
Faculty of Medicine
Department of Pharmacology

Toxicology and Forensic Chemistry Examination
For
Fourth Year Pharmacy Students

Time Allowed: Three hours Date: 29/ 12/ 2012

NOTE

الامتحان يقع فى هذه الورقة وفى ظهرها

* All the following questions are to be attempted in your answer notebook.
*Answer each question in a separate page.
*You have ***THREE PARTS TO BE ANSWERED***.

PART I

Write an accaunt an each af the following: (5 Marks Each)

1- Compare between the adverse reactions of chloramphenical and tetracyclines.
2- Classify penicillin's according to their antibacterial spectrum, give examples.
3- Mechanism, symptoms and treatment of arsenic toxicity.
4- *Three* different examples for harmful and beneficial drug interactions.
5- Mention the appropriate measures for treatment of toxicity by ingestion of Corrosives.
6- Mechanism of action and treatment of carbon monoxide toxicity.
7- *Three* mechanisms of resistance to anticancer drugs.
8- Symptoms and main lines of treatment of organophosphorous poisoning.
9- Mechanism of action, therapeutic uses and main side effects of sulphonamides.
10 - Risk factors in teratogenicity and carcinogenicity.

PART II

For each of the following MCQs, select the most appropriate answer:-* (1.5 *Mark Each)

1- All tlte following are symptoms of chronic elemental mercury toxicity Except:

A) Tachycardia. B) Gingiyitis
C) Confusion D) D,ry mouth

2- Strychnine produces convulsions:

A) Stimulating NMDA receptors
B) Facilitating the excitatory transmitter glutamate
C) Blocking the inhibitory transmitter GABA
D) Blocking the inhibitory transmitter glycine.

من فضلك أقلب الورقة لمتابعة باقى الأسئلة

3- Yellowish discolocuation of skin may occur during treatment with:

A) Quinacrine. B) Dehydroemetine. C) Tetracycline. D) Paromomycin

4- The following is an ropioic/) antagonist with long halflife:

A) Fehtanyl. B) Methadone. C) Naloxone. D) altrexone.

5- Which one of the following antibiotics is a potent inducerof hepatic drug-metabolizing enzymes?

A) Ciprofloxacin. B) Ampicilline. C) Erythromycin. D)Rifampcin.

6- Which of the following drugs is effective in influenza A virus infection?

A) Zidovudine. B) Vidarabine. C) Amantadine. D) Gancyclovir.

7- Symptomatic treatment may include the following Except:-

A) The use of anticonvulsants and analgesics.
B) The use of emetic agents and the induction of vomiting.
C) The use of ice and antipyretics.
D) The use of antitussive agents.

8- Antidotal therapy includes the following Except:-

A) The use of soap and water.
B) The use of chelating and reducing agents.
C) The use of competitive and non-competitive antagonists.
C) The use of physiological antagonists.

9- Increasing the threshold of toxicitv can be induced by the following Excepe:-.

A) The use of competitive antagonists.
B) The use of physiological antagonists.
C) The use of non-competitive antagonists.
D) The use of symptomatic treatment measures.

10- General methods for extraction of inorganic substances include all of the following Except:

A) Mineralization. B) Dialysis. C) Filtration. D) Ashing.

PART III

Select T for the true and F for the false statement:- (One Mark Each)

1- The odor of bitter almond in a forensic saJ.I1ple indicates the presence of nitrobenzene or hydrogen cyanide.
2- Chronic.lead toxicity causes delirium, tanic-clonic convulsian and chest pain.
3- Sadium fluoro acetate interfere with Kreb's cycle, farming fluorocitrat.e which stimulate aconitase enzyme and leads to reduction of O_2 consumptian, especially at CNS.
4- Fansidar is now recammended for long term prophylaxis of malaria.
5- A teratogen is an agent that can produce a permanent alteratian of structure or function in an arganism exposed during embryonic or fetal life.

GOOD LUCK

4th year Faculty of Pharmacy

(17January-2013)

Time:2hours

Write short notes on the following:

I-General rules of first aid. (5 marks)

2- First aid of Snake bite. (5 marks)

3- First aid kit. (5 marks)

4-Causes of convulsion. (5 marks)

5-Firts aid measures in fainting. (5 marks)

6-Definition and causes of shock. (5 marks)

7 - When to consult a doctor in cases of bleeding.

8- A: Inention degrees of bum. (2.5 marks)

B: discuss first aid management for severe bums. (2.5 marks)

9-Discuss the Protocol for managing foreign body airway obstruction (FBAO) in children. (5 marks)

10- Illustrate basic life support in adults. (5 marks)

GOOD LUCK

د.علا محمود وهبة جنيدى د. هالة سعد عبد الغفار د. محمد جمعه المظ

Assiut University 15.1. 2013

Faculty of Pharmacy Time allowed 2hrs.

Dept. of ind. Pharmacy Total Marks 70

Final industrial Pharmacy 1 Exam. PHI 522

The Exam consists of 6 *pages.*

All answers must be included in the answer notebooK.

Part I ..... (17 Marks)

1. Numerate the advantages of using steam as a heating medium.
2. Draw and comment on the drying rate curve.
3. Draw neat sketch for the falling film evaporator, mention its function.
4. Draw neat sketch for the fluidized bed granulator,

Part II ..... (20 Marks)

a)Write short notes on each of the following:

1. Caking of crystals and fractional crystallization.
2. Application of centrifugation in pharmacy.

b)How to perform the following duties, choose and draw one equipment:

1. Crystallization of sodium chloride.
2. Separation of fat from milk.

Part III ..... (13 Marks)

I) Write short notes on the following? (8 Marks)

A- Advantages and disadvantages of coulter counter in particle sizing?

B- How can you enhance the deposition of powders with low aerosolisation performance?

C- Flow rate and inspiration volume in testing DPIs *in-vitro?*

D- Why the cascade impactors are considered the equipment of choice in aerodynamic sizing and discuss generally their principle of operation?

II) Mark each of the following as true or false: (5 Marks)

1- Real powder systems are monodisperse.

( )

2- Particle size distribution is a list of values that defines the relative anlOunt of particles present, sorted according to their size.

( )

3- Always spray drying process gives monodisperse powder particles.

( )

4- Multi-Stage Liquid Impinger is a five stage liquid impinger while Marple-Miller cascade impactor is a six stage cascade impactor.

( )

5- Fbr pediatric applications, the Marple-Miller impactor 150P, can be used and operate between 6-12 L/min.

( )

6- When P3/P2 <0.4, the critical flow is assumed to be stable.

( )

7- Sieve analysis can be used with powder particles tends to form aggregates. ( )

8- Lung can be used for passive and active targeting.
( )

9- Smaller particles with diameter less than lj..lm are deposited easily into the alveolar region.
( )

10- Higher flow rate e.g., 100 L/min takes shorter time for DPls testing compared with low flow rate. ( )

Part IV..... (20 Marks)

1- Write the sign (√) for the correct statement and (X) for the false one and correct the false one of the following: (11 Marks)

A - The time rate of decrease in height of the visible interface between supernatant clear liquid and slurry containing the particles is the sedimentation rate. ( )

B - If the suspended particles are closely sized all particles fall at about the same velocity and not sharp demarcation is observed between the supernatant clear liquid and the slurry. ( )

C- Extraction towers can be used for extraction of dirty liguids, suspensions and high viscosity liquids. ( )

D- Ideal suspension is obtained when sedimentation volume (F) = 1 as no sediment is formed. ( )

E- When the density of dispersion medium is greater than dispersed substance, sedimentation occurs down- ward. ( )

F-The removal of certain constituent(s) from solid materials is called liquid-liquid extraction.. ( )

G- Solvent is one of the factors affecting extraction; as the extraction proceeds the concentration of solute will Increase and the rate of extraction will progressively decrease. ( )

H- The particle size influences the extraction rate in a number of ways. By decreasing the particle size continuously to the infinity, the extraction rate will be increased continuously. ( )

I- In most cases, the solubility of the material which is being extracted will increase with temperature to give a lower rate of extraction. ( )

J-Liquid-Liquid extraction towers are operated with two liquid phases flowing counter-current to each other. ( )

K- An alloy containing 18% chromium and 8% nickel is the most economical form of austenitic stainless steel, and nitric acid can be handled in it. ( )

L- Copper has a thermal conductivity eight times greater than steel but is corroded by a number of substances, particularly oxidizing agents. ( )

M- Bronze is a copper alloy and composed of copper and zinc, and is used in special tablet punches and dies. ( )

N- Because of the formation of resistant film, aluminium is used for acetic acid plant and storage vessels for ammonia, and its alloy is known as Duralumin. ( )

O- Fused silica (Vitreosil) has an extremely high coefficient of thermal expansion and vessels made from it can be heated to red heat and plunged into cold water without breaking. ( )

p- The corrosive reaction of metals is generally electrochemical in nature, where the flow of electrons within the metal(s) occurs from anode to cathode. (I)

Q-PTFE do not withstand high temperatures ,while PVC can be used at temperature above 200°C.

R-The greater the difference in potential between two metals, the slower will be the rate of corrosion.

S- Cathodic protection describes the technique whereby a structurally important metal is forced to become wholly cathodic by attaching to It a more electronegative second metal.

T- Uniform corrosion is the easiest to predict, discover and stop, while pitting is one of the destructive forms of corrosion and it is difficult to detect.

U- Select combinations of metals as close together as possible in the electro-chemical series is considered one way of controlling intergranular corrosion. (,)

V- In combating corrosion, Chromates, phosphates, and silicates are called cathodic inhibitors, while Organic sulphide and amine materials are called anodic inhibitors.

2- choose the best suitable material of construction for the following industries: (3Marks)

a- Manufacture of tube plates in evaporators and condensers.

b- For plant producing medicinal substances, e.g. the production of citric and gluconic acid and antibiotics.

c- For food industry and its main use being to provide a protective coating for steel, copper, brass.

d- Plant for the manufacture of salicylates, and a plated basket used in vitamin crystallization.

e- Manufacture of filter clothes.

f- Stills which are used for preparing Water for Injections BP and other distilled preparations.

3 - Choose the appropriate equipment for the following duties :(6 Marks)

A - Continuous extraction of oil from seeds.

B - Extractor consists of a short cylinder with its axis vertical, enclosed in a completely vapor-tight housing and used for leaching of intermediate solids.

C - It is used in the beet-sugar industry.

D - Extractor contains Raschig rings which are made of stoneware or metals.

E -it can be used for fractional extraction.

F- It can be used for extraction of antibiotics and unstable liquids.

Good luck

Assiut University **FRISH OR OLD**

Faculty of Medicine
Department of Pharmacology

BIOASSAY EXAMINATION
For
Fourth Year Pharmacy Students

Time allowed: Three hours ***Date: 25/5/2013***

الامتحان يقع في هذه الورقة وفي ظهرها

All the following questions are to be attempted in your answer notebook.
You have TWO parts to be answered:
Part I: composed of FIVE questions (Total 50 Marks).
Part II composed of MCQs and F&T (Total 20 Marks).

I- *Mention in details the principles and describe how to perform the following (10 marks):*

A) Survival time (asphyxiation) method for biological assay of thyroxin.
B) Mouse convulsion method for biological assay of insulin.

II- Explain in details the pharmacological basis underlying the use of each of the following drugs in the corresponding conditions and mention their possible adverse effects (10 marks):

A) Sitagliptin and pioglitazone in diabetes mellitus.
B) Vitamin D and alendronate in osteoporosis.

III- Write on each of the following (10 Marks):

1- Investigations required for patient receive long term therapy of corticosteroids.
2- Rational for use of corticosteroid in prevention of rejection after organs transplantation.
3- Role of cycloxygenase-2 in coordinating normal physiological functions.
4- Clinical uses of drugs acting on serotonin receptors.

IV- Mention each of the following(10 Marks):

1- Main therapeutic uses and adverse effects of bromocriptine.

2- Principles of **TWO** different methods for the biological assay of vasopressin.

3- Behavioral tests for screening of CNS activity of drugs.
4- Differences between tamoxifen and raloxifene.

V- Discuss each of the following (10 Marks):

1- The use of cardiovascular tests for screening of adrenergic antagonistic activity of a new compound.
2- How you can localize the possible site and mechanism of action of a new antihypertensive agent.

ASSIUT UNIVERSITY

FACULTY OF MEDICINE **Date: 22/ 5/ 2013**

PHARMACOLOGY DEPARTMENT **Time Allowed: 30 min**

MIDTERM EXAM OF BIOASSAY

FOR 4th Year PHARMACY STUDENTS

In your answer sheet, shade the ONE most appropriate letter for each of the following MCQs:

1. Which of the following activities occurs following the stimulation of H_2 receptors?

A) Enhanced secretion of hydrochloric acid in the stomach

B) Vasodilation

C) Bronchial smooth muscle contraction

D) Uterine contraction

2. ONE of the following drugs is a bradykinin antagonist:

A) Thioperamide

B) Aliskiren

C) Icatibant

D) Ketanserin

3. ONE of the following drugs is used in prophylactic treatment of migraine:

A) Sumatriptan

B) Betahistine

C) Methylsergide

D) Dihydroergotamine

4. Which ONE of the following isolated preparations is the most sensitive for bioassay of histamine?

A) Guinea pig tracheal chain

B) Guinea pig ileum

C) Rat stomach fundus

D) Rat uterus

5. Regarding angiotensins, which ONE of the following statements is INCORRECT?

A) All angiotensins are pharmacological target for sartans

B) Angiotensin IV has a potent effect on memory and recognition

C) Angiotensin III stimulates aldosterone secretion with equal potency to angiotensin II

D) Angiotensin II metabolite has a vasodilator response

6. Regarding eicosanoids, which ONE of the following statements is CORRECT?

A) High concentrations of PGE_2 produce uterine contraction

B) PGD_2 but not PGE_2 has a role in central development of fever in response to pyrogens

C) In the stomach, $PGF_{2\alpha}$ increases mucous secretion and reduces acid secretion

D) TX_{A2} activates platelet aggregation and constricts bronchi

7. Which ONE of the following 5-HT receptors is a ligand gated ion channel?

A) $5\text{-}HT_{1A}$ B) $5\text{-}HT_{2A}$

C) $5\text{-}HT_3$ D) $5\text{-}HT_4$

8. All the following statements are CORRECT EXCEPT:

A) The effect of acetylcholine on frog Rectus abdominus can be blocked by d-tubocurarine

B) An atropine-like compound enhances the effect of chorda tympani stimulation on salivary flow

C) A phentolamine-like compound produces a more marked tachycardia than prazosin

D) A phenylephrine-like compound contracts the guinea pig vas deferens

9. Which ONE of the following statements is INCORRECT?

A) The intestinal relaxation induced indirectly in vitro can be potentiated by a guanadrel-like compound

B) Ligation of renal arteries results in a prolonged increase in the blood pressure

C) Isoproterenol relaxes the tracheal chain preparation

D) A nifedipine-like compound causes a decrease in the blood pressure and reflex tachycardia

10. All the following statements are CORRECT EXCEPT:

A) A prazosin-like compound inhibits the pressor response to carotid artery occlusion

B) The response of the cat nictitating membrane to injected norepinephrine is inhibited by guanadrel

C) An ephedrine-like compound increases blood pressure and heart rate

D) A verapamil-like compound causes a decrease in the blood pressure and bradycardia

11. All the following statements are CORRECT EXCEPT:

A) The isolated rat uterus responds to β2 agonists by relaxation

B) The pressor effect of tyramine can be inhibited by pretreatment with a reserpine-like compound

C) Cutting off the baroreceptors afferent fibers induces persistent hypertension

D) A losartan-like compound induces hypotension and reflex tachycardia

12. Which ONE of the following statements is INCORRECT?

A) Frequent subjecting the animal to its prey causes a persistent increase in the blood pressure

B) The reflex bradycardia induced by norepinephrine can be inhibited by atropine-like compounds

C) The response of cat nictitating membrane to postganglionic nerve stimulation is inhibited by ganglionic blokers

D) The central injection of yohimbine antagonizes the hypotensive effect of clonidine

13. All the following statements are TRUE EXCEPT:

A) A reserpine-like compound potentiates the pressor response to carotid artery occlusion

B) The effect of neostigmine on the skeletal muscles is more marked than that of carbachol

C) A guanethidine-like compound inhibits the response of Finkleman preparation to nerve stimulation

D) The isolated aortic strips respond by slow contraction to norepinephrine

14. Which ONE of the following statements is INCORRECT?

A) In a full atropinized animal, large doses of carbachol increases the blood pressure

B) A phenylephrine-like compound increases the blood pressure and heart rate

C) A guanadrel-like compound inhibits the cat nictitating membrane contractions induced indirectly

D) I.V. infusion of a clonidine-like compound produces a transient increase in the blood pressure

15. Non-specific tests for screening of CNS active agents, include all of the following tests EXCEPT:

A) CNS depressant activity

B) Effect on muscle relaxation

C) Analgesic activity

D) Rota rod test

16. Specific tests in the screening of CNS active agents, include all of the following EXCEPT:

A) Anticonvulsant activity

B) Analgesic activity

C) Hypnotic activity

D) Anti-parkinsonian activity

17. The following are behavioral tests for screening of CNS active agents, EXCEPT:

A) Immunoassays for active metabolites

B) Locomotor activity

C) Negative conditioned avoidance

D) Self-administration

18. Behavioral tests used in the screening of CNS active agents, aims at the following EXCEPT:

A) Detecting the possible adverse effects of these agents

B) Detecting the possible deleterious effect on memory

C) Detecting the deleterious effect on judgment

D) Detecting their main useful actions

19. The release of endocrine hormones is controlled by all of the following EXCEPT:

A) Cerebral higher centers

B) Diet

C) Various neurotransmitters

D) Feed-back mechanism.

20. Which ONE of the following is a hypothalamic hormone?

A) Dopamine

B)Thyroid stimulating hormone

C) Growth hormone

D)Adrenocorticotropin

21. After puberty; hyperfunction of growth hormone leads to ONE of the following disorders:

A) Cretinism

B) Dwarfism

C) Gigantism

D) Acromegaly

22. Adrenocorticotropic hormone stimulates the synthesis and release of all of the following EXCEPT:

A) Epinephrine and norepinephrine
B) Glucocorticoids
C) Aldosterone
D) Adrenal androgens

23. Follicle stimulating hormone has the following actions EXCEPT:

A) It causes ripening of the Graffian follicles

B) It stimulates the secretion of progesterone

C) It is responsible for the development of seminiferous tubules

D) It is responsible for the maturation of spermatozoa

24. Concerning bioassay of oxytocin, all of the following statements are INCORRECT EXCEPT:

A) It initiates milk secretion in the mammary glands of pseudopregnant rabbits

B) It stimulates milk ejection in lactating rabbits

C) Glycogen deposition method could be used versus a standard preparation

D) An increase in the body weight of normal rats is an easy method for its assay

25. In the isolated rat uterus method for the assay of oxytocin, ONE the following is CORRECT:

A) Pregnant rats are used

B) Contractions of the uteri decrease as the concentration of oxytocin increases

C) The uterus is suspended in Tyrode's physiological salt solution

D) Female rats are pretreated with stilbesterol to increase the sensitivity of the preparation

26. For the assay of vasopressin using the antidiuretic activity, all of the following are TRUE EXCEPT:

A) Rats should be fasted overnight

B) Each animal is given some water added to it some ethanol

C) Urine drops are collected overnight

D) Urine volume decreases as the concentration of vasopressin increases

27. Insulin produces <u>ONE</u> of the following effects:

A) Increased gluconeogenesis.

B) Inhibition of lipoprotein lipase enzyme.

C) Increased glucose transport into cells

D) Stimulation of glycogenolysis.

28. Immunological complications of insulin include all the following <u>EXCEPT:</u>

A) Hypoglycemia.

B) Lipoatrophy

C) Lipohypertrophy.

D) Anaphylactic reactions.

29. <u>ONE</u> of the following insulin preparations usually provides a peakless basal insulin level with lesser incidence of hypoglycemia:

A) NPH

B) Lent insulin

C) Glargine

D) Regular insulin

30. Insulin secretagogues block <u>ONE</u> of the following channels in pancreatic β-cells:

A) Voltage gated Na^+ channels.

B) Delayed rectifier K^+ channels.

C) L-type Ca^{2+} channels.

D) ATP-sensitive K^+ channels.

BEST WISHES ……..!

ASSIUT UNIVERSITY
FACULTY OF MEDICINE **Date: 22/ 5/ 2013**
PHARMACOLOGY DEPARTMENT **Time Allowed: 90 min**

PRACTICAL EXAM OF BIOASSAY
FOR 4th Year PHARMACY STUDENTS

In your answer sheet, shade the ONE most appropriate letter for each of the following MCQs:

1-A drug or a biologically active substance is assayed biologically in all of the following cases EXCEPT:

A) If it's chemical nature is not known.

B) If it can be obtained in a pure crystalline and suitable chemical form

C) If it lacks a specific chemical group for specific indicative reaction with another substance

D) If the biological method gives more accurate, specific and sensitive results.

2- All of the following conditions should be fulfilled while using frog rectus abdominus muscle preparation EXCEPT:

A) PH 7.3 - 8 B) Good aeration

C)Temperature 37-38° C D) Physiological salt solution

3- All the following about physiological salt solutions are CORRECT EXCEPT:

A) It contains Na^+, K^+ and Ca^{+2} ions to obtain optimal muscle contraction

B) It contains deIxtrose as a nutrient

C) It contains $NaHCO_3$ to adjust pH

D) It contains NaH_2PO_4 as a buffer

4- An isolated rat uterus preparation requires ONE of the following physiological salt solutions:

A) Tyrode B) Dejalon

C) Ringer D) Locke-Ringer

5- ONE of the following preparations is preferred for the bioassay of acetylcholine:

A) Rat stomach fundus B) Guinea pig ileum

C) Guinea pig tracheal chain D) Dorsal muscle of the leech

6- The preparation that is preferred for screening of serotonin-like activity is:

A) Rat stomach fundus B) Rat colon

C) Guinea pig ileum D) Rabbit's duodenum

7- All of the following are possible sources for biological variation in responses EXCEPT:

A) The use of a very large number of animals for both standard and unknown preparations

B) Carrying out the tests for each of the standard and unknown products at different times

C) Ignoring the use of designs such as a cross-over or Latin square design.

D) Using animals with different sex for both the standard and the unknown experiments.

8- Regarding the frog rectus abdominus isolated preparation, all of the following are CORRECT EXCEPT:

A)It is used for the bioassay of acetylcholine due to its nicotinic effects

B)Physostigmine may be added to increase the spontaneous activity of the preparation

C)It could be used for the bioassay of pancuronium

D)There is no adjustment for temperature

9- Which ONE of the following is CORRECT regarding a more potent drug?

A) It has a larger median effective dose

B) It has a higher biological variation

C) It has a higher magnitude of effects

D) It has a greater biological activity per unit weight

10- The steeper the dose-response curve of drug A than B indicates that drug A is:

A) Drug A is safer than drug B

B) Drug A is more potent than drug B

C) Drug A is more efficient than drug B

D) Drug A has a smaller difference between its effective and toxic dose than drug B

11- All the following are considered graded responses EXCEPT:

A) Determination of the sleeping time following phenobarbital administration

B) Counting the number of convulsions after picrotoxin administration

C) Measurement of acetylcholine contraction when applied to the frog rectus abdominus

D) Measurement of blood glucose level after insulin administration

12- Which ONE of the following pairs of experiments is used for differential assay of a mixture of epinephrine and norepinephrine?

A) Pithed rat and spinal cat blood pressure

B) Pithed rat blood pressure and guinea pig ileum

C) Spinal cat blood pressure and rabbit intestine

D) Rabbit intestine and rat uterus

13- A differential assay was performed on a mixture of 5-HT and acetylcholine ONE of the following steps is INCORRECT:

A)The dorsal muscle of leech can be used to determine the concentration of acetylcholine in the presence of curare

B) ACh can be assayed using the frog rectus abdominus

C)5-HT can be assayed on the rat stomach fundus preparation in the presence of hyoscine

D) 5-HT can be assayed on the rat uterus after addition of atropine

14- All the following are disadvantages of matching assay EXCEPT:

A) The initial results are not utilized in the final calculations

B) It is purely subjective

C) Errors could be detected from the results obtained

D) No indication of parallelism between the standard and test curves

15- The design of the 4-point assay involves all the following EXCEPT:

A) The use of 2 doses of each of the test (T) and standard (S) drug

B) The ratio between the 2 doses of the T should be the same as those of the S

C) The mean responses of the selected doses of the T & S are plotted versus the log dose

D) The doses of S and T are usually selected in the supramaximal range

16- Which ONE of the following screening tests for narcotic analgesics is non-specific?

A) Hot plate method

B) Tail flick method

C) Tail clip method

D) Writhing method

17- Edema is commonly induced by the S.C. injection of all of the following agents EXCEPT:

A) 12% yeast suspension

B) Egg albumin

C) Xylene

D) Trypan blue

18- Regarding Langendorff's preparation for screening of cardiac glycosides all the following statements are CORRECT EXCEPT:

A) It is not suitable for quantitative assay of cardiac glycosides

B) Induction of heart failure can be produced by increasing the amount of calcium in the perfusion fluid

C) It can give false positive results

D) Perfused rabbit's and Guinea pig's hearts are examples of this preparation

19- ONE of the following agents is commonly used to induce cardiac arrhythmia in experimental animals:

A) Sodium chloride

B) Emetine

C) Epinephrine

D) Ferric chloride

20- **Which ONE of the following statemnets is INCORRECT?**

A) Indirect stimulation of the tibialis muscle can be inhibited by d-tubocurarine

B) Epinephrine-like compounds increase blood pressure and heart rate

C) Vecuronium stimulates the isolated frog rectus abdominus

D) Succinylcholine stimulates the isolated frog rectus abdominus

21- All of the following statements are CORRECT EXCEPT:

A) Neostigmine potentiates the effect of pancuronium

B) Pipacuronium-like compounds lead to loss of righting reflex in mice

C) The central injection of yohimbine antagonizes the hypotensive effect of clonidine

D) The tracheal chain preparation responds to isoproterenol by relaxation

22- All of the following preparations are usually used for screening of skeletal muscle relaxing activity EXCEPT:

A) Cat papillary muscle preparation

B) Rat phrenic-nerve diaphragm preparation

C) Cat sciatic nerve-tibialis muscle preparation

D) Cat sciatic nerve-gastrocnemius muscle preparation

23- ONE of the following methods is specific for screening of neuromuscular blockers:

A) Rota rod test

B) Head drop method

C) Inclined screen test

D) Righting reflex

24- All of the following are specific effects for the screening of antipsychotic activity EXCEPT:

A) Inhibition of both unconditioned and conditioned avoidance response

B) Taming effect if the animal is placed with its prey

C) Inhibition or reduction of induced aggression

D) Reduction of amphetamine-induced excitement in a large number of animals grouped in a crowded place

25- Which ONE of the following tests is specific for screening of antipsychotic activity:

A) Reduction of spontaneous locomotor activity

B) Reduction of the falling time in the rotarod test

C) Central psychosedation

D) Loss of righting reflex

26- All the following agents can be used for chemical induction of seizures EXCEPT:

A) Bicuculline
B) Pentylenetetrazole
C) Acetic acid
D) Picrotoxin

27- The supramaximal electric shock method is used to induce ONE of the following:

A) Tonic convulsions
B) Clonic convulsions
C) Tonic-clonic convulsions
D) None of the above

28- All the following are CORRECT about screening of local anesthetics EXCEPT:

A) They cause inhibition of blinking reflex if applied to the rabbit's eye
B) They inhibit foot withdrawal of the frog if put in HCl
C) They lower the electric threshold necessary for stimulation of isolated frog sciatic nerve
D) They inhibit sensitization of skin by pin pricks

29- Which ONE of the following local anesthetics does not inhibit the blinking reflex of the rabbit's eye?

A) Tetracaine
B) Procaine
C) Lidocaine
D) Cocaine

30- Your answer in the previous question is based on ONE of the following:

A) Tetracaine is the least efficacious local anesthetic
B) Lidocaine is the least potent local anesthetic
C) Procaine has poor penetrating ability to skin and mucous membranes
D) Cocaine has poor corneal penetration

Appendix 7 'Student's' *t*-distribution

Degrees of freedom	*Value of P*					
	0.10	0.05	0.02	0.01	0.002	0.001
1	6.314	12.71	31.82	63.66	318.3	636.6
2	2.920	4.303	6.965	9.925	22.33	31.60
3	2.353	3.182	4.541	5.841	10.21	12.92
4	2.132	2.776	3.747	4.604	7.173	8.610
5	2.015	2.571	3.365	4.032	5.893	6.869
6	1.943	2.447	3.143	3.707	5.208	5.959
7	1.895	2.365	2.998	3.499	4.785	5.408
8	1.860	2.306	2.896	3.355	4.501	5.041
9	1.833	2.262	2.821	3.250	4.297	4.781
10	1.812	2.228	2.764	3.169	4.144	4.587

Problem 1:

The effect of 2 vitamins on the body weight of experimental animals was studied in 2 animal groups. The 1st group consisted of 4 animals and their body weights were 32, 18, 16 and 22gm,, while the 2nd group consisted of 5 animals and their body weights were 24, 22, 26, 20 and 23.

Decide if any of these experiments should be repeated on a larger number of nimals.

Problem 2:

In an experiment for the induction of diabetes mellitus in rats using alloxan monohydrate, the following blood glucose levels were obtained in a group of 5 animals before alloxan injection: 100, 90, 86, 96 and 85 mg/dl

While after induction, the BGL were 220, 200, 100, 190 and 186 mg/dl

Find out whether alloxan could be considered as a diabetogenic agent or not?

Total marks=70

Part 1. Prof. Dr. Elsayed A. Ibrahim. (17.5 marks)

1-For each of the incomplete statements cited below ONLY ONE completion of those given is wrong . Choose the wrong one among those follow each statement

1- Benign tumors are characterized in that they;

a- can grow very large and press on healthy organs and tissues.
b- can grow into (invade) other tissues.
c- are almost never life threatening.
d- can't spread to other parts of the body

2- Radiation therapy for cancers is;

a- not useful against cancers of the head and neck.
b- considered as a local treatment because only cells in and around the cancer are affected.
c- can be given alone or combined with other treatments, such as surgery or chemotherapy
d- not useful against cancer that has already spread to distant parts of the body.

3- Autologous or allogeneic stem cell transplant has been used;

a- mainly in hematological malignancies such as myeloma, lymphoma, and leukemia.
b- with little proof of efficacy in treating solid tumors, particularly breast cancer,
c- to allow for higher doses of chemotheraputic agents.
d- to allow for lower doses of chemotheraputic agents.

4- Cytoprotective drugs;

a- are used to reduce adverse effects of cytotoxic drugs
b- are used to treat or prevent all toxic effect of cytotoxic drugs
c- may have adverse effects of their own.
d- may not treat or prevent all toxic effects

5- The success of chemotherapy increases when;

a- given as combination chemotherapy.
b- given in the late stage of the disease.
c- the tumor is easily supplied by the blood.
d- given after early surgical removal of the primary tumour to decreases the tumour burden.

6-Individuals at risk of coronary heart disease (CHD) could show;

a- high TC
b- high HDL-C
c- high ratio of TC:HDL-C
d- high LDL-C

7- For practical purpose the following values are considered ideal serum lipid profile;

a-Total cholesterol, TC < 5.0 m mol/l ≡ <200 mg/dl.
b- LDL-cholesterol, LDL-C <3.0 m mol/l ≡<100 mg/dl.
c- HDL-cholesterol, HDL-C<0.9m mol/l ≡ < 40 mg/dl
d-Triglycerides TG < 2.3 m mol/l ≡< 150 mg/dl.

8 - The choice of lipid lowering agents depends on;

a- the underlying dyslipidaemia.
b- the response required.
c- the patient's age.
d- the patient acceptability.

9 - Methadone is an opioid analgesic which has a number of unique characteristics that include;

a- no known active metabolites.
b- consistent pharmacokinetics among different individuals.
c- longer administration intervals
d- excellent oral and rectal absorption.

10- Tramadol which has analgesic effect comparable to morphine;

a- should not be used if there is a history of addiction or convulsions.
b- its action is probably through stimulation of noradrinaline uptake and inhibition of serotonin release at nerve synapses.
c- it causes less constipation.
d- is less respiratory depressant than other opioids.

11- Dyslipidaemia is a term that expresses abnormalities in concentrations of circulating lipids in blood that encompass

a- hyper cholesterolaemia.
b- hyper low-density lipidaemia.
c- hyper high-density lipidaemia.
d- hyper triglycerideaemia (TG)

12- Chronic pain has distinct characteristics as;

a- usually it is a part of more complex situation.
b- it tends to be circular in nature.
c- usually it is accompanied with physical signs and symptoms.
d- usually requires regular administration of analgesics.

13- Morphine is the prototypical opioid and is

a- generally the treatment of choice for chronic severe pain.
b- les potent than hydromorphone.
c- exerting its action primarily by stimulation of the mu opioid receptors.
d- having a ceiling analgesic effect.

14- The risk of developing coronary heart diseases is increased in individuals with elevated serum concentrations of

a- high-density lipoprotein cholesterol.
b– total cholesterol.
c- low-density lipoprotein cholesterol.
d- very low-density lipoprotein.

15- Patients with type-2 diabetes show serum lipid levels which indicate

a- increased levels of triglycerides.
b- increased levels of HDL-C.
c- increased levels of LDL-C.
d- normal levels of TC

16- Triglycerides are the major component of;

a- very low-density lipoprotein.
b- high-density lipoprotein.
c- low-density lipoprotein.
d- chylomicrons.

17- Opioid analgesics reduce the sensation of pain by

a- decreasing the amount of pain perceived by the nerves at the spinal cord.
b- bring about a feeling of well- being and euphoria and relaxation which often help to decrease the experience of pain.
c- Inhibiting the transmission of nerve impulses that carry the sensation of pain to the relevant area of the brain.
d- selective or non-selective blocking of enzymes involved in the synthesis of prostaglandins.

18- Among the goals of radiation therapy are

a-to remove tumors from the body while saving as much normal tissue and function as possible
b-to cure or shrink early stage cancer
c-to stop cancer from recurring (coming back) in another area
d-To treat symptoms for advanced cancer

19- The ways of giving radiation therapy include

a- using a machine that directs high-energy rays from outside the body into the tumor and some normal nearby tissue.
b-using a radioactive source in the form of a wire, seed, or pellet that is put inside the body in or near the tumor
c-removing body tissue that is cancerous or likely to become cancerous (malignant) and exposing to external radiation.
d- giving unsealed radioactive sources (drugs) by mouth or by injection, which then travel throughout the body.

20 - Chronic malignant pain can;

a- have a combination of acute, intermittent, and chronic pain components.
b- arise at the primary site of the cancer.
c- be caused through cancer treatment with surgery, chemotherapy, and radiation therapy.
d- be less responsive to commonly used analgesic medication classes

II- Mark (A) for the true and (B) for the false statement in the following:

21- Prostaglandines are synthesized at the site of injury by the action of the enzyme cyclooxygenase to inhibit pain sensation by nociceptors

22- Acute pain is linear, has a positive meaning and often not associated with Physical signs.

23- Tramadol is considered as the suitable analgesic for use at first step of analgesic ladder.

24- Somatic pain is often described as tingling, numbing, lacinating, electrical jolting or shooting.

25-Paracetamol is the first-choice analgesic for relief of all types of pain.

26- Most cancers form tumors, but not all tumors are cancerous.

27-The analgesic regimen of NSAIDs should be tailored for each patient.

28- High-density lipoprotein-cholesterol levels less than 0.9 m.mol/l are associated with increased coronary mortality.

29- The risk of developing coronary heart diseases is increased in individual with elevated serum concentrations of high density lipoprotein cholesterol.

30- Patients with type-2 diabetes show serum levels which indicate increased HDL-c.

31- acetylcholine and γ-amino butyric acid inhibit firing of nociceptors.

32 -Like chemotherapy, radiation therapy is usually a local treatment.

33-Chemotherapy kills cancer cells that may have spread to other parts of the body from the original tumor.

34- Chemo should not used along with surgery or radiation therapy .

35- Chemos may themselves be carcinogenic.

Part II. Prof.Dr. Tahani Elfaham (17.5 marks)

III. Choose the most appropriate answer of the following:

36- The combination of local anesthetics with vasoconstrictors to;

A- Localize the action of the anesthetic. B-Prevent absorption of the anesthetic.
C-Increase the vasoconstrictor effect. D- Decrease the toxicity of the anesthetic.

37- Caution should be taken not to administer drugs with pectin, charcoal or kaolin;

A-To guard against drug oxidation
B-To prevent adsorption and loss of drugs.
C-To protect the patient from diarrhea
D-All of the previous.

38- A poorly soluble weak electrolyte drug administered in a solid dosage form, the rate-limiting step for the absorption of such a drug is;

A-pH of the medium
C-pKa of the drug
B- Dissolution in GIT fluids
D- The degree of ionization

39- Drugs which delay gastric emptying, reduce absorption of coadministered drugs as;

A- Metoclopramide B- Propantheline C- Paracetamol D-Aspirin

40- Cholestyramine interferes with the absorption of bile salts, as well as with;

A- anticoagulants B-Salicylates. C- cholesterol. D- All of the previous.

41- Concentration of albumin is decreased in cases of ;

A- Arthritis B-Burns C-Renal failure D-All of the previous.

42- Displacement of bilirubin from albumin binding sites under the effect of administered drugs resulted in;

A-Release of glucornyldehydrogenase enzyme
B- Jaundice
C- Hypobilirubinemia
D- Loss of proteins.

43- Secondary pharmacological effects may interfere with using phenothiazines anti-psycotics,with;

A- Paracetamol B-Ibuprofen. C- Tricyclic antidepressant D-Phenobarbital.

44- The binding to plasma proteins is;

A-Slow process B-Reversible C-Irreversible. D-Nonsignificant

45-Plasma albumin binds to;

A- Salicylates. B- Imipramine C- Propranolol D- Quinidine.

46- Patients which are at increased risk of drug interactions;

A- On polypharmacy
B- Old patients
C- Patients with hepatic or renal disease.
D- All the previous.

47- Nitroglycerine tablets are better packaged in;

A- Plastic containers.
B- Glass containers.
C- Bottle with adsorbent
D- Any of these.

48- Phenobarbital causes thrombus formation in warfarin anticoagulated patient because;

A-Decreases the anticoagulant effect. B-It is enzyme inducer.
C-Increases the rate of metabolism of warfarin D- All of the previous.

49- Ampicellin is preferable than amoxicillin in case of arthritis because;

A-Ampicellin is less soluble B-Amoxacillin is less protein bound.
C-Ampicellin does not reach synovial fluids D-Ampicellin is less protein bound.

50- Creatinine clearance from 20-50ml/min denotes;

A- Normal renal function B-Renal failure
C-Moderate renal function D-Nothing.

51- Biliary excretion and the entrohepatic shunt is responsible for;

A-Prolongation of drug action
B- Termination of drug action
C-Damage of bacterial flora
D-Affecting the antibiotic efficacy.

52- As consequences of increased binding to proteins the drug ;

A- Actual Vd is smaller
B- Drug takes shorter time to equilibrate
C- Intensity of response increased.
D- The effect is not prolonged.

53- A drug labeled 50 mg, if this quantity is administered totally by the patient;

A-The bioavailability is high B -The pharmaceutical availability is 100%
C-The pharmacokinetic availability is 50 D-The rate of absorption is high.

54- The small intestine is a favorable site of absorption irrespective of drugs pH because;

A-It is thin with high vascularity
B- It has sites for active absorption
C-It is alkaline
D-Both (1&2).

55- Failure of the oral contraceptives may occur by administration of,

A-Penicillins B- Tetracyclines. C- Amoxycilllin D- All of them.

56- Increased urine specific gravity indicates;

A-Diabetes mellitus B-diabetes insipidus C-Hyperthyroidism D-Sickle cell anemia

57- Red blood cell destruction results in increased amounts of;

A- Bilirubin B-Urobiliongen C-Biliverdin D- All of the previous

58-The test comprises , Oxalic acid + ammonium oxalate + glacial acetic acid + urine estimates,

A- Acetone B- Calcium C- Oxalates D-Bilirubin.

59- Cotrimoxazole is potent antibacterial comprises a combination of,

A- Trimethoprim + dihydrofolate reductase.
B- Trimethoprim + Sulfamethaxazole.
C- Sulfamethaxazole + folic acid
D- Sulfamethaxazole + Clavulanic Acid

60- From 1ry literature resources ,

A- Scientific journals. B- Medline. C-Handbooks. D- All of the previous.

IV. - Mark (A) for the true and (B) for the false statements in the following:

61-Packed Cell Volume (PCV) in women equals 45% ( )
62-Low MCV occurs in folic acid deficiency anemia ( )
63-Normal red blood cells begin to hemolyze in a hypotonic Nacl solution of 0.44 % or less . ( )
64- Clinical trials performed on healthy volunteers. ( )
65- The incidence of medication errors and the risk of serious errors occurring in children are significantly less than in adults. ( )
66- Glucose tolerance test is performed on persons with fasting hyperglycemia and glucosuria. ( )
67- Cholesterol is presented to the intestinal wall from diet only. ( )
68-Diazepam by causing enzyme induction increases the rate of metabolism of warfarin. ( )
69-Chemical interference between neomycin and bile and fatty acids in the intestine, disrupts the absorption of fats and Vit. A. ( )
70-Long term use of anticonvulsants leads to reduced vit. D and hypercalcimia. ( )

Part III. Dr. Ghareb Soliman (17.5 marks)

V- Choose the best answer for each of the following:

71. ..... are among the factors that determine drug response.

A-Drug physicochemical properties, B-Concurrent diseases,
C- Patient's diet, D-All of the above.

72. Aminoglycoside sprays may lead to permanent hearing loss in young children because.....

A-The liver is not well developed to metabolize the drug,
B-The drug percutaneous absorption is higher in young children,
C-The muscle mass in the children is reduced which leads to higher absorption,
D-All of the above.

73. Withdrawal symptoms seen in newborns whose mothers received excessive doses of diazepam while in labor are due to.....

A-Impaired hydroxylation of diazepam in the newborn's liver,
B-Impaired glomerular filtration in the newborn,
C-Impaired glucuronide conjugation in the newborn's liver,
D-All of the above.

74. Higher doses of antibiotics or some other drugs may be needed during pregnancy because.....

A- Pregnant women have higher volume of distribution,
B- Pregnant women have lower concentration of plasma proteins
C- Pregnant women have enhanced drug excretion. D-All of the above.

75. Patients having renal failure and undergoing hemodialysis may have failure of therapy of drugs like nadolol and amoxicillin because.....

A-These drugs are eliminated during the dialysis process,
B-The kidneys are impaired in these patients,
C-Hemodialysis may induce liver metabolizing enzymes,
D-A & C.

76. Liver diseases are classified as acute or chronic according to.....

A-The severity of the condition,
B-Whether the history is less than or greater than 6 months,
C-The cause of the disease (i.e., viral infection, etc),
D-None of the above.

77. Wilson's disease is characterized by excessive absorption and deposition of dietary.....

A-Iron, B-Copper, C-Magnesium, D-All of the above.

78. Leuconychia which can be seen in up to 80% of patients with chronic liver disease is a consequence of low plasma .....

A-Bilirubin, B-Hemoglobin, C-Albumin, D-All of the above.

79. Gynaecomastia in men which is a sign of liver disease is due to impaired liver metabolism of.....

A-Testosterone, B-Progesterone, C-Estrogen, D-None of the above.

80. Elevated alkaline phosphatase is useful in the diagnosis of liver diseases but it should be associated with elevated.....in order to confirm the hepatic origin of the enzyme.

A-γ-glutamyltranspeptidase, B-Aspartate transaminase,
C-Alanine transaminase, D-A &B.

81. Colestyramine and colestipol are useful in the treatment of pruritus associated with liver disease and they act by binding.....

A-Bilirubin, B-Prothrombin, C-Albumin, D-Bile acids.

82. Refractory ascites is best treated by.....

A-Combination of spironolactone and loop diuretics,
B-Repeated large volume paracentesis in combination with albumin administration,
C- Large volume paracentesis,
D-None of the above.

83. Metronidazole might be used during the treatment of liver diseases to.....

A-Decrease the production of ammonia, B-Alleviate the pruritus symptoms,
C-Treat bacterial infections associated with the disease, D-None of the above.

84. The best drug for the prevention of rebleeding in patients having oesophagealvarices is.....

A-Octreotide, B-Terlipressin, C-Somatostatin, D-Propranolol.

85. PEG-interferon is preferred over lamuvidine for the treatment of hepatitis B virus because.....

A-Lamuvidinehas higher rate of virological relapse after treatment is stopped,
B- PEG-interferon is more effective than lamuvidine,
C- PEG-interferon has lower incidence of side effects,
D-All of the above.

86. Drug-resistance mutations seen during the treatment of hepatitis B virus can be avoided by.....

A-Using more effective drugs,
B-Using more than one drug (combination therapy),
C-Use IV medications rather than oral,
D-None of the above.

87. The standard therapy of chronic hepatitis C virus is.....

A-A combination of PEGylated interferon and lamuvidine,
B-A combination of entecavir and pegylated interferon α-2a,
C-Pegylated interferon α-2a,
D-A combination of PEGylated interferon and ribavirin.

88. .....is the best treatment for Wilson's disease.

A-Penicillamine, B-Pyridoxine, C-A combination of A&B, D-None of the above.

89. Sodium valproate toxicity is observed more in.....

A-Patients over 40 years of age, B-Children under 3 years,
C-Females compared to males, D-None of the above.

90. Cholestatic jaundice associated with co-amoxiclavis more common in....

A-The elderly, B-Patients having liver disease,
C-Patients having kidney disease, D-Males than females.

91. Extremely high values of aspartate transaminase and alanine transaminase are seen in.....

A-Acute liver disease, B-Chronic liver disease, C-A &B, D-None of the above.

92. Tetracyclines cause steatosis by interfering with synthesis of lipoproteins that normally remove .....from the liver.

A-Proteins, B-Carbohydrates, C- Lipids, D-All of the above.

93. The best indicator of severity of acute hepatitis is.....

A-Alkaline phosphatase level, B- γ-glutamyltranspeptidase,
C-Alanine transaminase, D-Prothrombin time.

94. The main clinical feature of pure cholestasis is.....

A-Lethargy and malaise, B-Anorexia, nausea and vomiting,
C-Jaundice, D-Severe pruritus.

95. Bleeding in patients having acute liver failure should be treated by.....

A-IV injection of vitamin K, B-Oral menadiol sodium phosphate,
C-IV infusion of fresh frozen plasma, D-All of the above.

VI- For each of the following mark (A) for the true statement and (B) for the false one.

96. A plasma paracetamol concentration should be taken immediately after ingestion of overdose.
A-True, B-False.

97. Pack size of paracetamol greater than 16 tablets or capsules should be sold under the supervision of a pharmacist.
A-True, B-False.

98. Liver injury might be suspected in children taking sodium valproate and having anorexia, abdominal discomfort, nausea and vomiting.
A-True, B-False.

99. Idiosyncratic hepatotoxicity is predictable, dose dependent and usually has a short latency period.
A-True, B-False.

100. Lactulose is useful in the treatment of hepatic encephalopathy because it reduces the production, as well as the absorption of ammonia.
A-True, B-False.

101. Colestyramine or colestipolare usually ineffective in the management of pruritus caused by cholestasis and should not be considered first-line therapy.
A-True, B-False.

102. Hepatitis virus C infection is associated with the development of acute hepatitis in the majrity of individuals.
A-True, B-False.

103. Decreased hepatic perfusion in patients with cardiovascular diseases leads to accumulation of drugs metabolized mainly by the liver.
A-True, B-False.

104. Hepatic coma caused by diuretics is mainly due to excessive loss of potassium.
A-True, B-False.

105. Water soluble drugs such as gentamicin achieve higher serum concentration in neonate compared to adults.
A-True, B-False.

Part IV: Instructor Dr. MostafaAbdelRahman(17.5 marks)

VII- Choose the most appropriate answer (ONLY ONE) for each of the following:

106-Which of the following factors contributes to the incidence of inflammatory bowel disease (IBD)?
A-Fatty and spicy food B-Probiotics, C-Prebiotics, D- All of the above.

107-The prolonged inflammation caused by Crohn's disease (CD) is .....
A-Limited to the mucosa of the colon
C-Often confined to the rectum (40% of cases)
B-Transmural and affect deeper layer of the digestive lumen
D- Both B or C.

108-Pancolitis is a clinical subcategory of ulcerative colitis (UC) which commonly affects .....

A-The rectum B-Left-sided colon C-The whole colon D-Ileocaecal area

109-Which of the following is among the characteristics of Ulcerative colitis (UC)?

A-There are skipped colon areas without inflammation
B-Colon is erythematous and granular
C-Spread along the whole digestive canal
D-Colon Strictures are common finding

110-The common endoscopic findings of Crohn's disease (CD) include .....

A-Fistula formation B- Abscess formation
C-Cobblestone appearance D-All of the above

111-The common complains of patients with Crohn's disease (CD) include .....

A-Bloody diarrhea B-Fatigue and bradycardia C-Pancreatitis D-Weight gain.

112-Ankylosing spondylitis, an extra-intestinal manifestation of IBD, is defined as .....

A-Inflammation of the biliary tree B- Inflammation of the lower back
C-Burning and itchy eye D-Peripheral arthritis

113-Which of the following is preferred for short-term treatment of acute and flared IBD?

A-Aminoglycosides B-Sulfasalazine C-Corticosteroids D-Antibiotics

114- Sulfasalazine is broken by bacterial azoreductase to the active drug .....

A-Sulfapyridine B-Olsalazine C-Balsalazide D- Mesalazine

115-Myelotoxicity should be observed and monitored when using ..... for managing IBD

A-Methotrexate B-Azathioprine C-Sulfasalazine D-Both A and B

116- Methotrexate for treatment of IBD is characterized by the following except .....

A-Effective in Crohn's disease
B-Parenteral administration is better tolerated
C-Assessing thiopurine methyl transferase is important prior to treatment
D-Once weekly dosage regimen is usually effective

117. Which of the following vitamins in large doses is teratogenic?

A. Vitamin A B. Vitamin B12 C. Vitamin C D. Vitamin D

118.The risk of immunogenicity may be associated with intravenous administration of .....

A-Cyclosporin B- Sulfapyridine C- Infliximab D-Metronidazole

119-Patients with perianal fistulas associated with Crohn's disease may benefit from treatment with.....

A-Sulfamethoxazole B-Metronidazole C- Sulfapyridine D-Cyclosporin

120-Which of the following drugs was found to reactivate intracellular pathogens such as TB?

A-Infliximab B. Aminosalicylates C- Prednisolone D-Metronidazole

121-Nuasea of pregnancy is usually self-limiting which could be relieved by.....

A-Eating small snacks (e.g. fatty and spicy foods)
B-Eating large and frequent meals
C-Avoidance of drinking plenty of fluids
D-None of the above

122- Inadequate intake of iron during pregnancy may lead to .....

A-Infant with low birth weight B-Spina bifida
C-Lower absorption of Ca^{++} D-infant with abnormal vision.

123-The following are examples of drugs that can transfer with higher extent into breast milk except .....

A-Amiodarone B-Phenobarbitone C-Aminoglycosides D-Lithium carbonate

124-Hyperemesis gravidarum is characterized by .....

A-Signs of dehydration and frequent urination
B-Pregnant women may need parenteral feeding
C-Effectively managed by iron and psychotherapy
D-The use of antiemetic is not recommended

125-Stool softener such as .....is properly safe to treat constipation associated with pregnancy

A-Mg^{++} and Al^{+++} salts B-Zinc sulfate monohydrate
C-Docusate sodium D-Senna leaves.

126The use of low-dose aspirin during pregnancy may be associated with .....

A-Lower rates of miscarriage B-Reduced risk of pre-eclampsia
C-Accelerated labourand premature birth D-Opening of ductus arteriosus

127-The characteristics of medication use in pregnancy include .....

A- Polar drugs cross the placenta more easily than lipophilic drugs
B- Drugs induce only direct pharmacological effect on the fetus
C-Drugs with a large molecular weight such as heparin cross the placenta more easily
D- Drugs used in 2^{nd} and 3^{rd} trimesters affect functional development of fetal organs

128-Which of the following drugs can cause masculinization of a genetically female fetus?

A. Spironolactone B. Cyproterone acetate C. Danazol D. Both A and B

129-Human breast milk is different than plasma in that breast milk has .....

A- A slightly higher pH B-Higher protein-binding capacity
C. Higher concentrations of lipids D. Tendency to trap lipophobic drugs

130-Changes in the pharmacokinetics of some drugs during pregnancy are properly because pregnancy is associated with .....

A. Lower glomerular filtration rate
B. Lower volume of distribution
C. Lower plasma albumin concentrations
D. Lower rates of hepatic metabolism

VIII.- For each of the following statements, mark (A) for the true statement and (B) for the false one .

131-Inflamaotory bowel disease (IBD) is thought to be caused by overreaction of the body immune system on normal intestinal flora

A-True B-False.

132-"Bachwash ileitis" is an inflammatory condition that commonly affects the sigmoid and descending colon

A-True, B-False.

133-Erythema nodosum is a skin manifestation associated with IBD that is characterized by a subcutaneous nodule that develops into an ulcer.

A-True, B-False

134-Malabsorption of Vitamin B12 is common among patients with Crohn's disease.

A-True, B-False.

135-Incidence of Sclerosing cholangitis is higher in crohn's disease than ulcerative colitis

A-True, B-False.

136-Treatment of IBD with immunosuppressants should be reserved to patients who don't respond to therapy with aminosalicylates or corticosteroids.

A-True, B-False.

137- The pressure of the growing uterus in pregnancy increases the incidence of heartburn, constipation and hemorrhoids among pregnant women compared to non-pregnant.

A-True B. False

138- Exposure of infants to drugs from lactation is usually less than that during pregnancy

A-True B. False

139- Misoprostol, a prostaglandin E_1 (PGE_1) analogue, is commonly used to relieve heartburn associated with pregnancy

A-True B. False

140- Drugs that act as dopamine antagonists suppress the production of breast milk

A-True B. False

**** End of questions, best wishes****

Assiut University

Faculty of Pharmacy	Department : Industrial Pharmacy
Course Code : PHI 543	Industrial Pharmacy II
Saturday 8/6/2013	Instructors: Staff members of 2 nd term
Final Exam	
Total Grade: 70 Marks	Time Allowed: 2 hours

1. This examination consists of (5 pages)
2. This examination carries 70/150 marks.

***3. Oral exam will be held in the department* directly after this exam.**

Answer the following Questions:

QI: .....(10 Marks)

Look at the figures below and answer the questions follows:

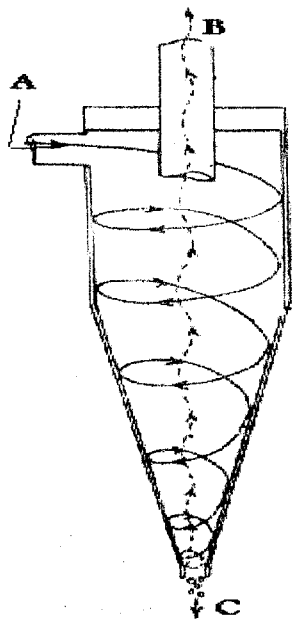


Figure I

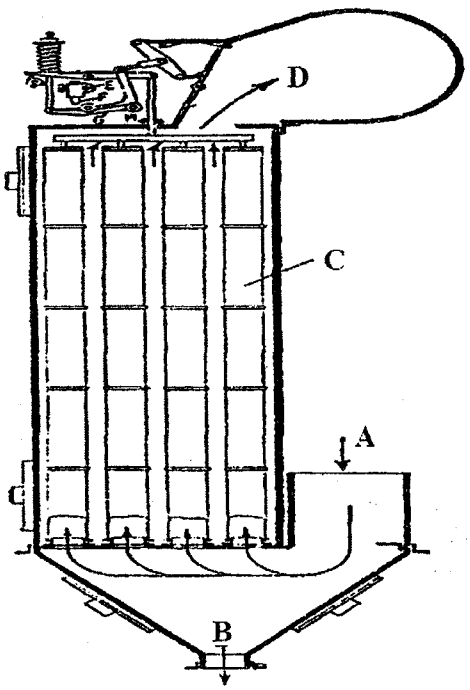


Figure II

A- Write the name of each equipment shown in Figures I and II and their function. Put you answers in the table follows:

Figure number	Name	Function
Figure (I)		
Figure (II)		

B- Annotate each as indicated by the letters in the following table:

Figure number	Annotations
Figure (I)	A).....,...B).....C).....
Figure (II)	A).....B).....C).....D).....

C- Which one can be used for filtration of air? Rationalize (Give reason) for your selection?

.....

.....

D- <u>Concerning the equipment of Fig. I : Answer the following:</u>

a) What are the factors affecting its separation efficiency?

.....

.....

.....

.....

b) Mention the modifications you can introduce to improve its efficiency.

.....

.....

.....

.....

c) Does it move to perform its function ? If yes.. In what direction?

.....

QII:.....(10 Marks)

<u>Write (T) for the true statement and (F) for the false one</u>

1- As operator activities increase in an aseptic processing operation, the risk of product contamination decreases. ( )
2- HEPA filter is fitted in the clean rooms in order to provide the area with clean air that moves in conventional flow mode to keep the area clean. ( )
3- During preparation of sterile products, it essential to remove microorganisms only while removal of particulates is not that very important. ( )
4- Operators are the major source of contamination in sterile area. ( )
5- Differential air pressure in the sterile area means that we have to keep higher pressure at HEPA-filtered air zone than in buffer room outward. ( )
6- Air lock doors that are fixed into the sterile area consist of two <u>airtight</u> <u>doors</u> in series which open simultaneously (in the same time). ( )
7- HEPA filter is essential in the sterile area as it sterilize the products. ( )
8- Of the advantages of vibration mill over ball mill is slow grinding time and maximum energy consumption. ( )
9- HEPA filter is more efficient than ULPA filter. ( )
10- Size-reduction equipment utilizes 98 % of the energy provided ( )
11- The tablet thickness can vary even without a change in tablet weight. ( )
12- At constant die fill, the hardness value of the tablets decreases and the thickness increases as additional compression force is applied. ( )
13- Film coating can be adapted to separate the incompatible components ( )
14- Water soluble dyes are more chemically stable to light than water insoluble pigments ( )
15- Scored tablets can be film coated using thick polymer solution ( )

QIII:.....(20 Marks, *(each carries 2 marks)*

1. A tablet formulation is made of powder mix by direct compression. The resulting mean tablet weight is 100 mg. The active pharmaceutical ingredient is 1mg per tablet. The daily dose of this drug is 3 mg. A formula was made to produce 100 thousand tablets.

   A. How to add the drug substance to the excipients prior to mixing? Name the technique used.

.....

.....

   B. What sample size could be used to determine the degree of mixing?

.....

.....

2. Draw a simple annotated diagram to show the effect of mixing time on the degree of mixing.

3. What do you think is more accurate and what is faster mixing: the method in which diffusion predominates and that in which convection predominates?

.....

.....

4. Enumerate the types of segregation in powder mixing. How segregation could occur in ordered mixtures?

.....

.....

5. Explain the different methods of mixing the disintegrant with the other ingredients in the tablets formulae made by granulation.

.....

.....

6. How the dead spots (unmixed spots) are minimized in the construction design of the mixers of semisolids (e.g., Sigma blade mixer)?

.....

.....

7. How the turbine mixer could produce emulsions of fine droplet size?

.....

.....

8. What is the mechanism of retaining bacteria by the HEPA filter?

.....

.....

9. Name the equipment used in clarification of syrups, injection, solutions, and insulin liquors with mention of one of its advantages.

.....

.....

10. What is the objective of using the filter aids? Mention 2 examples of filter aids

.....

.....

****

QIV- (A) Write (T) for the true statement and (F) for the false (5Marks)

1- To minimize the hazards of cross contamination, all raw materials should be received in previously used containers. ( ).

2- Actual yield means the quantity that is actually produced at any suitable phase of manufacture, in the absence of any loss or error in the actual production.( ).

3- In aseptic processing, air supply filtered through HEPA and flows at about 190 feet/min. ( ).

4- Clean, non-porous and non-reactive instruments are used for weighing or transferring raw material. ( ).

5- All containers sealed after filling to reduce the hazards of contamination of any product. ( ).

(B) Complete the following:.....(5 Marks)

I- Mechanical hazards encountered by the package are:

1-.....

2-.....

3-.....

4-.....

For treatment: 1-.....

2-.....

3-.....

II- The labels should be large enough to accommodate the following data **(5 Marks)**

1-.....

2-.....

3-.....

4-.....

QV:.....(15 Marks)

Assume a drug "x" in the USP XXVI has a dose of 100.0 mg in a tablet form, the total tablet weight is 400.0 mg and has the **following formula:**

Ingredients Rx	%(w/w)	Weight in "mg" per tablet	Weight in "kg " of each ingredient
Drug "x"	20.0		
Lactose monohydrate	64.0		
Wheat starch	10.0		
Sodium starch glycolate (Explotab)	3.0		
Talc powder	2.0		
Magnesium stearate	1.0		

a) Calculate the weight in "mg" per tablet for each ingredient and **insert your calculations in the table above**

b) If you have 150 kg of drug "x" , calculate the weight in "kg " of each ingredient to manufacture this product and **insert your results in the table above.**

c) Using the wet granulation method, mention the necessary steps and draw a sketch for each equipment you use before the compression step.

.....

.....

.....

GOOD LUCK!!!

بسم الله الرحمن الرحيم

Assiut University
Faculty of Pharmacy
Medicinal Chemistry Department

جامعة أسيوط
كلية الصيدلة
قسم الكيمياء الطبية

Course Title and Code: Medicinal Chemistry-4 (PHC-557)

Final Exam.: 2nd Semester 2012/2013

Date: June 4th 2013 **Time Allowed: 2 hours**

إقرأ هذه التعليمات جيداً قبل البدء فى الإجابة

١. تأكد ان كراسة الإمتحان تتكون من ١٤ (أربعة عشر) صفحة متسلسلة دون هذه الصفحة وفى حالة تكرار او نقص اى اوراق اطلب إستبدالها فوراً .

٢. أكتب إسمك ورقم جلوسك باللغة العربية وبخط واضح على غلاف كراسة الإجابة.

٣. يتكون الإمتحان من **اربعة أجزاء** ومطلوب الإجابة عليها جميعاً.

٤. الإجابة بالقلم الجاف الأزرق **ولن يعتد بأى اجابة بالقلم الرصاص.**

٥. يجب مراعاة ان تكون الإجابة محددة بقدر ما هو مطلوب فى السؤال.

٦. الأسئلة متعددة الإجابات تحتوى على إجابة واحدة فقط صحيحة وإختيار اكثر من إجابة يعتبر غير صحيح.

٧. الجمل او المعادلات الناقصة والتى يجب استكمالها **فى الفراغات المخصصة لذلك فقط** مع مراعاة رسم المركبات متى طُلب ذلك.

توزيع مجموعات الإمتحان الشفوى ستعلن بلوحة إعلانات القسم عقب الإمتحان النظرى مباشرة. يرجى الإلتزام بها ولن يسمح بأى تجاوز فى ذلك

مع أطيب أمنيات قسم الكيمياء الطبية بالتوفيق ،،،

أ.د. حسن حسن فرج

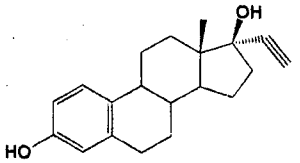
أ.د. محمود محمد شيحه

د. جمال الدين صابر القرمانى

Part one: Choose the most correct answer for each of the following: (27 x 0.5 point)

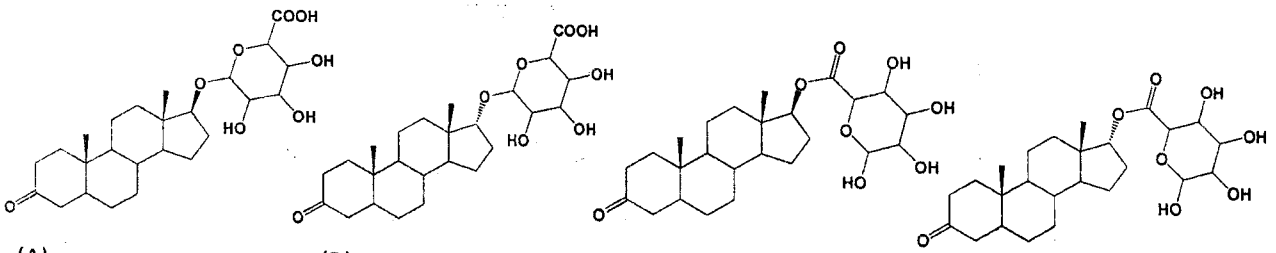
13.5

1. Ethinylestradiol is metabolized to .....



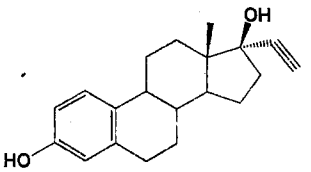
   a. Ethinylestradiol -3- glucuronoide
   b. Ethinylestradiol-17-glucuronoide
   c. Ethinylestradiol -3- phosphate
   d. Ethinylestradiol-17-phosphate

2. Following metabolic activation of testosterone, the active form is further metabolized to:



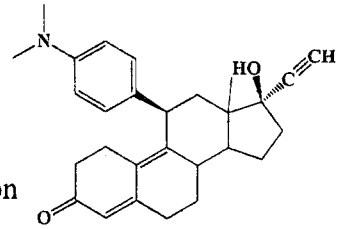
(A) (B) (C) (D)

3. The etherification of 3-OH group of ethinylestradiol results in:



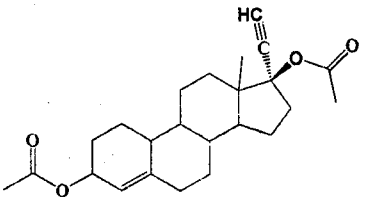
   a. Affect pharmacodynamics properties of the drug
   b. Affect pharmacokinetic properties of the drug
   c. Blocking metabolic deactivation by hydroxylation
   d. Enhance metabolic deactivation by hydroxylation

4. The mode of action of mifepristone as abortifacient is:



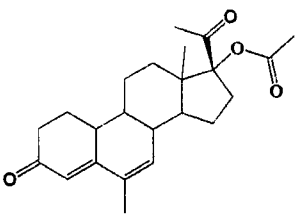
   a. Blocking progesterone receptors and increase prostaglandin level
   b. Blocking progesterone receptors and inhibit prostaglandin secretion
   c. Inhibition of the biosynthesis of progesterone and increase prostaglandin level
   d. stimulation of the biosynthesis of progesterone and increase prostaglandin level

5. Ethynodiol diacetate is converted to active form via:



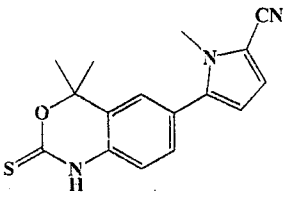
   a. Hydrolysis of both ester groups
   b. Hydrolysis of both ester groups followed by 3-OH oxidation
   c. Hydrolysis of both ester groups followed by 17-OH oxidation
   d. Hydrolysis of both ester groups followed by oxidation of 3- and 17-OH

6. The chemical nomenclature of Nomegestrol acetate is:



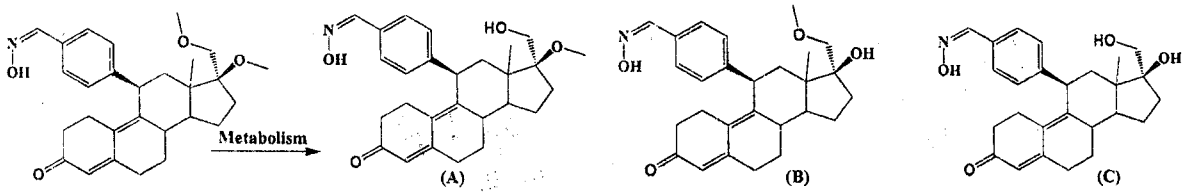
   a. 17-β hydroxy-6-methyl-18-norpregna-4,6-diene-3,20-dione acetate
   b. 17-α hydroxy-6-methyl-18-norpregna-4,6-diene-3,20-dione acetate
   c. 17-α hydroxy-6-methyl-19-norpregna-4,6-diene-3,20-dione acetate
   d. 17-β hydroxy-6-methyl-19-norpregna-4,6-diene-3,20-dione acetate

7. Tanaprogest is…



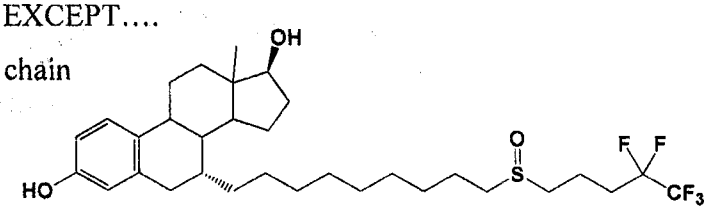
   a. Nonsteroidal progesterone metabolism inhibitor
   b. Nonsteroidal progesterone biosynthesis inhibitor
   c. Nonsteroidal selective progestin receptor agonist
   d. Nonsteroidal selective progestin receptor antagonist

8. Asoprisnil is activated by metabolism to……



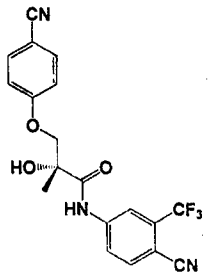
9. Asoprisnil has the following effects EXCEPT:
   a. Act as SPRM agent; agonist when coactivator is predominant
   b. Act as SPRM agent; antagonist when coreprocessor is predominant
   c. Inhibit endometrial proliferation maintaining estrogen effect on bone
   d. Inhibit endometrial proliferation maintaining progesterone effect on bone

10. Fulvestrant has the following properties EXCEPT….



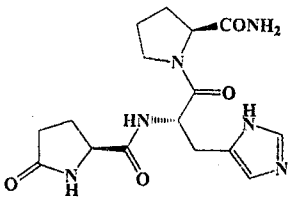
   a. Substitution at 7-α with long alkyl chain
   b. Pure estrogen receptor antagonist
   c. Act as SERM agent
   d. Act as SERD agent

11. Concerning enobosarm which of the following properties is not true….



   a. Nonsteroidal androgen
   b. Orally available with low hepatotoxicity
   c. Not a substrates for aromatase or 5α-reductase
   d. Exhibit affinity as full androgen receptor agonists

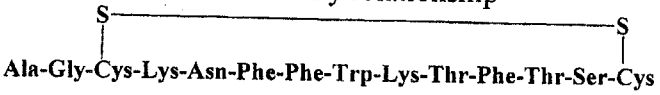
12. Thyroliberin is tripeptide hormone composed of …



a. (pyro)Pro-His-Glu-NH_2
b. (pyro)Glu-His-Pro-NH_2
c. Glu-His-Pro-NH_2
d. Pro-His-Glu-NH_2

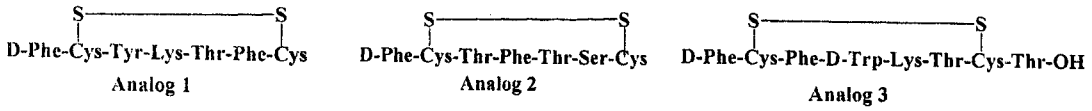
13. Which of the following is **true** regarding SAR of thyroliberin
a. N^1-methylhistidine is inactive.
b. N^1-methylhistidine is more active.
c. N^3-methylhistidine is more active
d. $N^1$and N^3-dimethylhistidine is more active

14. Which of the following is **not true** somatostatin structure activity relationship



a. Cys to D-Cys increases glucagon selectivity
b. Opening the disulfide bridge cause loss of activity
c. Opening the disulfide bridge does not cause loss of activity
d. Replacement of all aromatic amino acids with Tyr increases activity

15. Which analog of the following somatostatin analogs is considered more potent and has longer duration



16. Codactide(18 AA) is a synthetic analog of ACTH (39 AA) resist degradation by aminopeptidase due to:

Ser-Tyr-Ser-Met-Glu-His-Phe-Arg-Typ-Gly-Lys-Pro-Val-Gly-Lys-Lys-Arg-Arg-Pro-Val-Lys-Val-Tyr-Pro

a. Truncation from C terminal to 18 AA with changing Arg-Arg with Lys-Lys
b. Truncation from C terminal to 18 AA with changing Lys-Lys with Arg-Arg
c. Truncation from N terminal to 18 AA with changing Arg-Arg with Lys-Lys
d. Truncation from N terminal to 18 AA with changing Lys-Lys with Arg-Arg

17. Which one of the following changes would most likely NOT increase the half-life of a peptide drug?

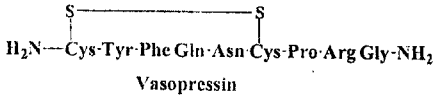
a. The replacement of an "S" amino acid with its "R" counterpart.

b. The replacement of an L amino acid with a D amino acid.

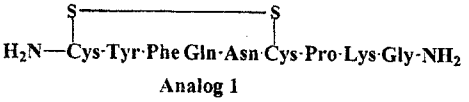
c. The replacement of a basic amino acid with an acidic amino acid.

d. N-methylation of the peptide bond nitrogen.

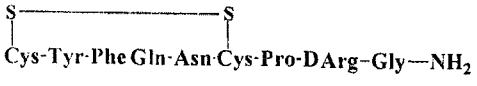
18. Which analog of the following vasopressin analogs is considered more longer duration



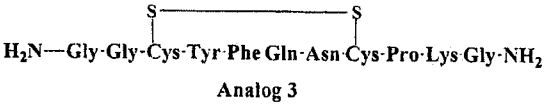
Vasopressin



Analog 1

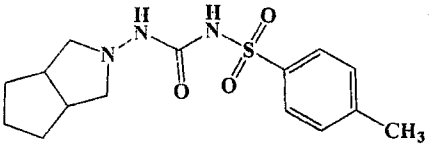


Analog 2



Analog 3

19. The drug shown below is an appropriate treatment for which of the following types of patients?



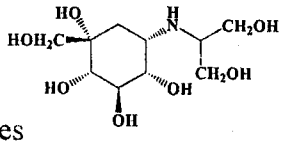
a. A person with a high basal metabolic rate who wishes to gain weight

b. Type II diabetic patient taking a non-sulfonylurea hypoglycemic agent

c. Type II diabetic patient producing sufficient insulin that is insulin resistant

d. Type II diabetic patient taking a biguanide that is compliant with diet and exercise

20. The drug indicated below is NOT an appropriate treatment for which one of the following types of patients?



a. Type I diabetic patient taking insulin

b. Type I diabetic patient susceptible to hypoglycemic episodes

c. Type II diabetic patient taking a non-sulfonylurea hypoglycemic agent

d. Type II diabetic patient taking an insulin sensitivity enhancer

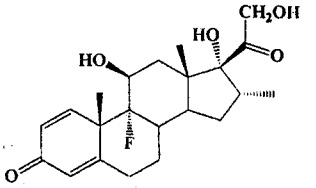
21. The functional group which increases both mineralocorticoid and glucocorticoid activity is

a. a 1,2 -double bond.

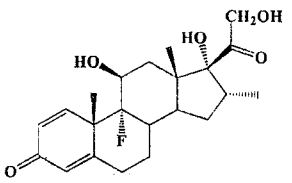
b. an 11β-hydroxyl group.

c. a 9α-fluorine.

d. a 16α-methyl group.



22. The functional group which served to separate glucocorticoid activity from mineralocorticoid is:



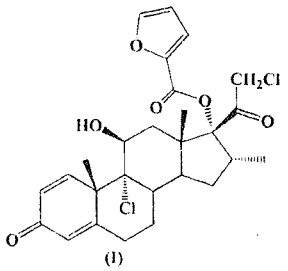
a. a 1,2 -double bond.

b. an 11 β -hydroxyl group.

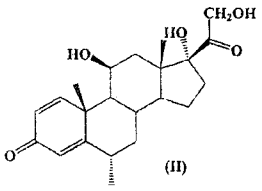
c. a 9α-fluorine.

d. a 16α-methyl group.

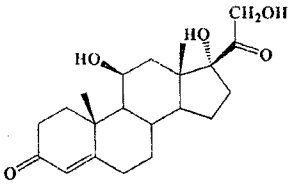
23. The TRUE compounds arrangement in increasing order of their affinity for glucocorticoid receptors is:



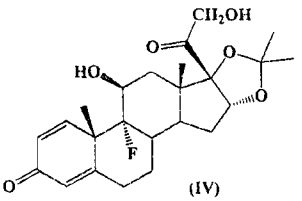
(I)



(II)



(III)



(IV)

a. III, II, I, IV

b. III, I, II, IV

c. IV, II, I, III

d. I, IV, II, III

24. Which of the following statements pertaining to *natural endogenous* steroids is/are correct?

a. The major difference between a 5α- and a 5β-steroid is the ring A conformation.

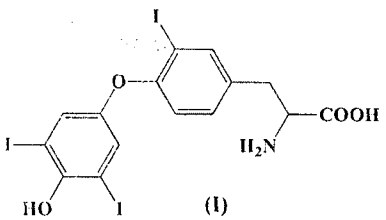
b. Progesterone, and most endogenous estrogens and androgens are 5α-steroids.

c. Both males and females produce androgens, estrogens and progestins.

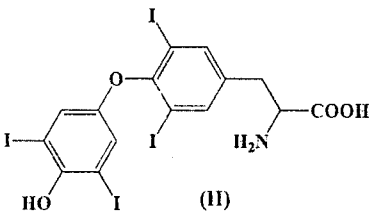
d. Choices A and B

e. Choices A and C

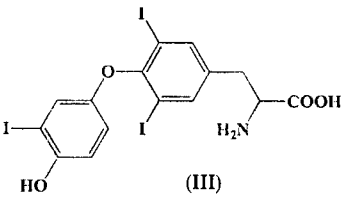
25. Which one of the following would you predict to be an active thyroid hormone?



(I)



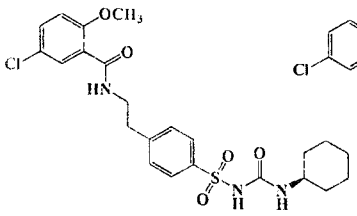
(II)

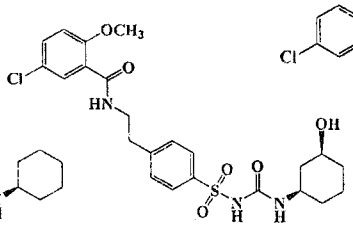


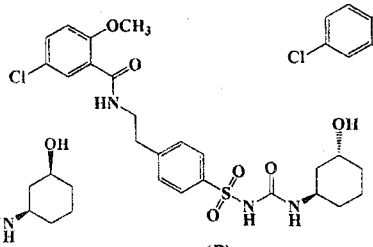
(III)

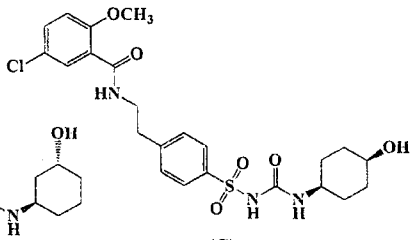
26. Insulin form dimer in presence of zinc due to zinc coordination with…
    a. Basic amino acids as Arg
    b. Acidic amino acids as Glu
    c. Basic amino acids as His
    d. OH-containing amino acids as Ser

27. Which of the following is the active metabolite of glibenclamide


(Glibenclamide)


(A)


(B)


(C)

PART TWO: Answer the following questions ***(15 x 2 points)***

30

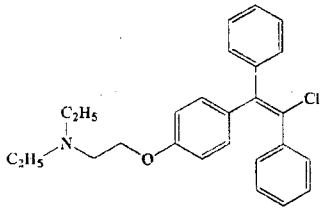
I. Pioglitazone is subjected to metabolism to active metabolites. Draw the chemical structure of TWO main active metabolites of pioglitazone

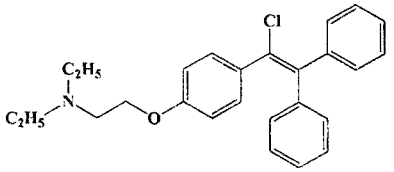

Pioglitazone

Active metabolite (1)

Active metabolite (2)

II. Which of the following compounds is more active (A or B) as SERM; justify your answer

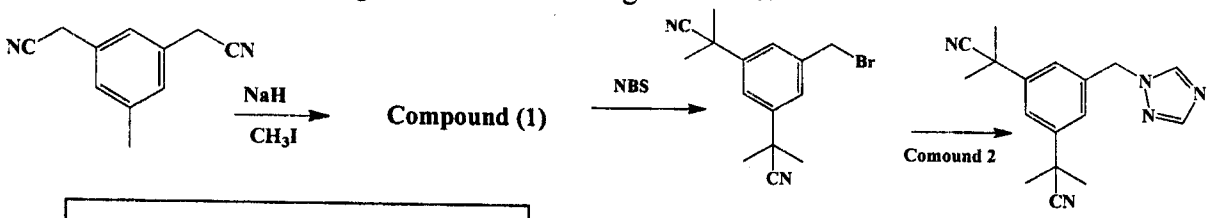

Compound (A)


Compound (B)

.....

.....

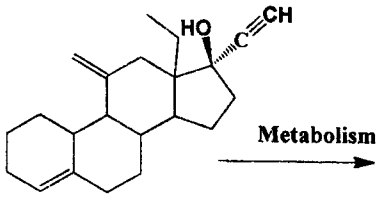
III. Complete the following scheme with missing structures:



Compound (1)

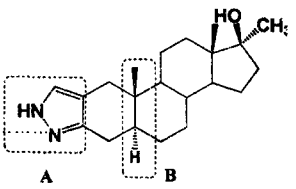
Compound (2)

IV. Complete the following equation by drawing the active ptogestin metabolite



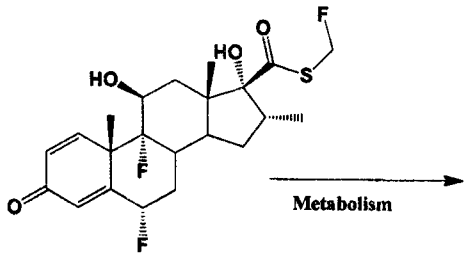
Active metabolite used as implants

V. Complete the information of the following compound



1. The main pharmacological action is .....
2. Role of encircled group A on the action is .....
3. Stereochemistry of encircled group B is .....
4. Insertion of 17-α methyl group will results in ..... and .....
5. Esterification of 17-β OH will results in .....

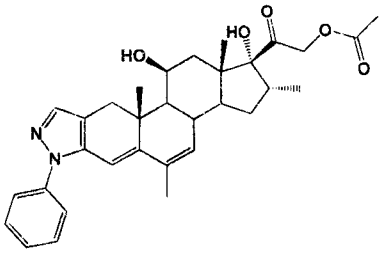
VI. Fluticasone is locally used corticosteroid, the amount of drug reach to circulation is rapidly inactivated. Draw the chemical structure of the metabolite.



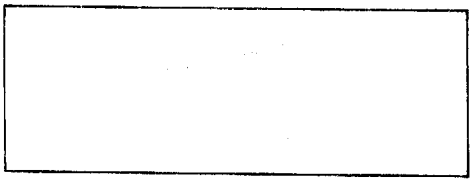
Inactive metabolite

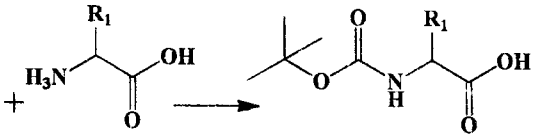
VII. Show the role of the following groups on the corticosteroid activity of cortivazol

1. Phenylpyrazolo group .....
2. 11-β OH group .....
3. 21-Acetate ester .....
4. 16-α Methyl group .....
5. 6-methyl-6-ene group .....



VIII. Complete the following equation with the appropriate chemical structure





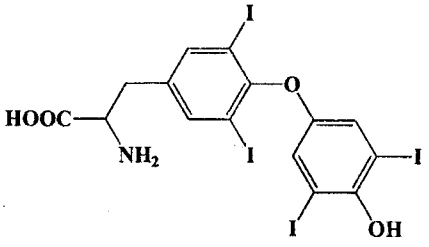
IX. Investigate the structure of natural gonadoliberine and write the structure of the following synthetic products:

Pyro-Glu-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH_2

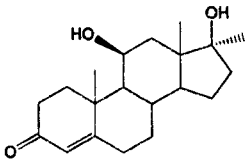
Leuprolide acetate:

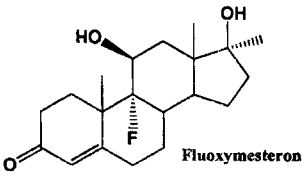
Goserelin acetate:

X. Illustrate the possible metabolic pathways of T_4 showing the effect on drug activity



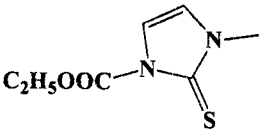
XI. Outline scheme for synthesis of fluoxymesterone starting from 11-hydroxy-17-methyltestosterone



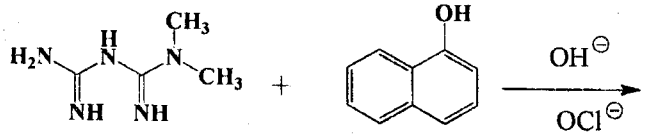


Fluoxymesteron

XII. Outline scheme for synthesis of carbimazole



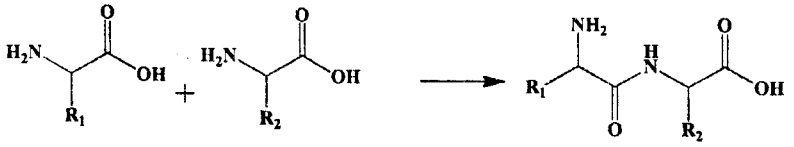
XIII. Complete the following equation with appropriate structure



XIV. Show the physicochemical and biological changes occurs when polypeptide drugs are subjected to high temperature or vigorous shaking

.....
.....
.....
.....
.....
.....
.....

XV. Show the EIGHT stages of dipeptide chemical synthesis



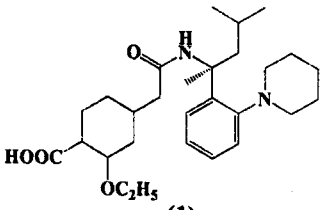
1. .....
2. .....
3. .....
4. .....
5. .....
6. .....
7. .....
8. .....

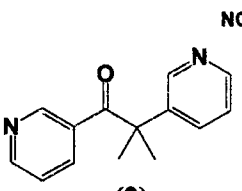
PART THREE: ***Match the following information with given compounds in next page and fill the table with corresponding compound number***

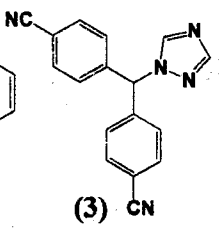
(20 x 0.5 point)

10	

Information	Compound number
Protected amino acid	
Peptide coupling reagent	
Steroidal aromatase inhibitor	
Potent mineralocorticoid agent	
Potent synthetic glucocorticoid	
Reversible aromatase inhibitor	
Corticosteroid biosynthesis inhibitor	
SPRM agent used mainly for endometriosis	
Norprogesterone analog used as contraceptive	
Rapid onset potent sulfonylurea oral hypoglycemic	
Drug used prophylactic for diabetic disorders	
Active metabolite of drug used for breast cancer	
Nortestosterone progestin containing nitrile group	
SERM agent used mainly in treatment of osteoporosis	
Progesterone receptor blocker used as postcoital contraceptive	
Corticosteroid with no effect on hypothalamic pituitary axis	
SERM used for treatment of advanced (metastatic) breast cancer	
Potent enzyme inhibitor used with insulin and oral hypoglycemic	
Rapidly acting short duration nonsulfonylurea oral hypoglycemic	
Progestin drug has anti-androgenic and anti-mineralocorticoid activity	


(1)


(2)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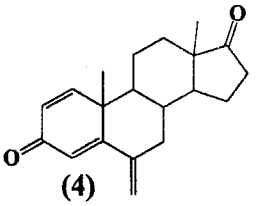
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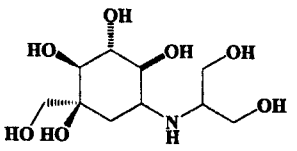
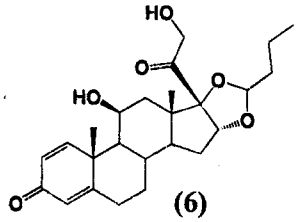
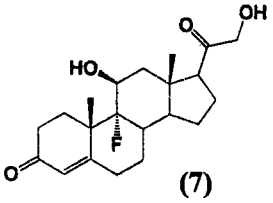

(5)


(6)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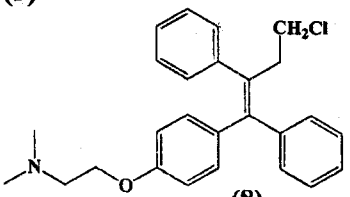
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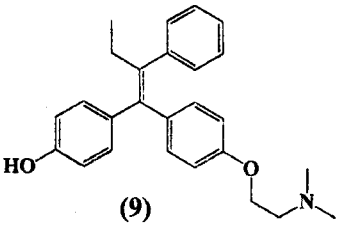
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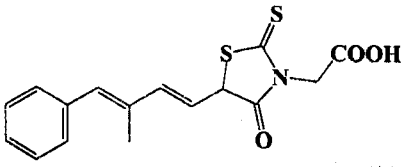
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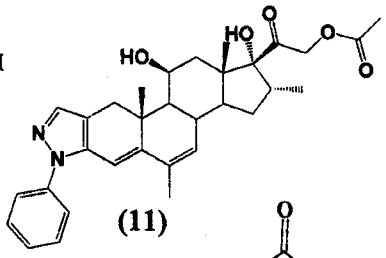
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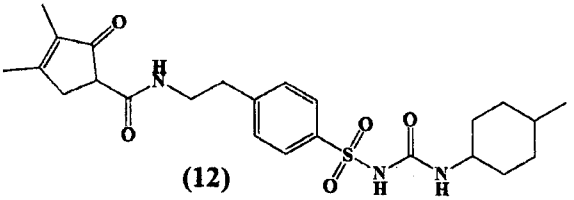
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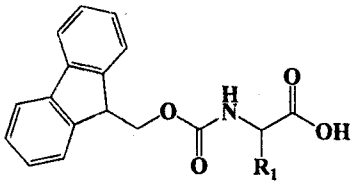
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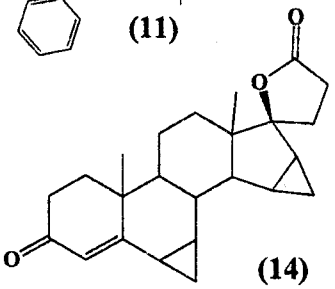
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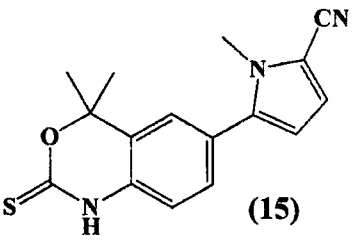
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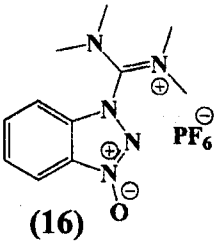
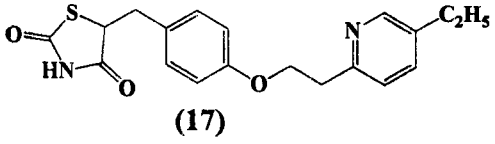

(16)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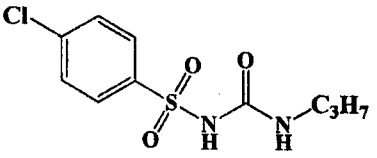
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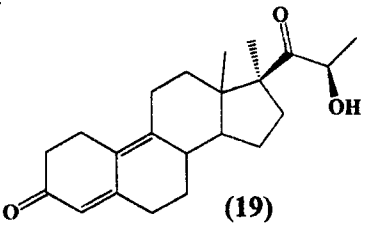
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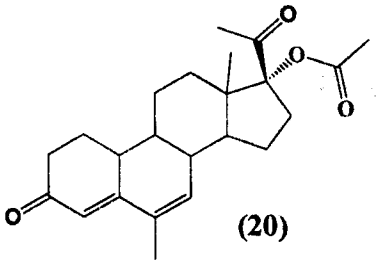
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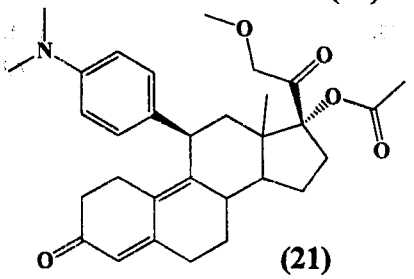
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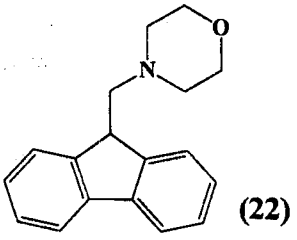
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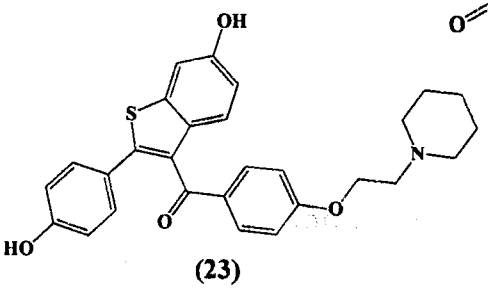
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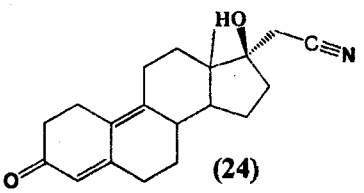
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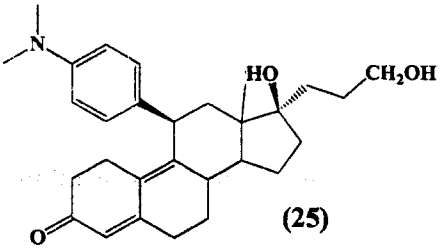
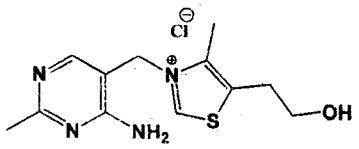

(25)

16.5

PART FOUR:

1. *Complete the statements with proper ones ,draw structure when required:*

a. Thiochrome (II) resulted from thiamin (I) through reaction with ..... in ..... medium. ***(1.5 points)***

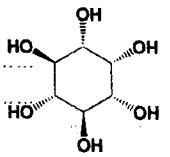


(I) (II)

b. Inisitol (III) chemically nomenclature is ***(0.5 point)***

.....

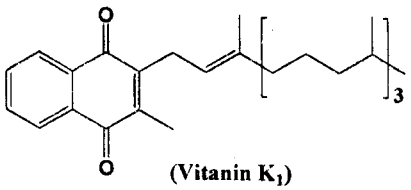
.....



(III)

c. Outline spectrophotometric method for assay of ascorbic acid ***(1.5 points)***

d. Encircle the pharmacophoric moiety of vitamin K. Draw water soluble analog and write its chemical nomenclature. ***(2 points)***



(Vitanin K_1)

Water-soluble analog

Generic name:

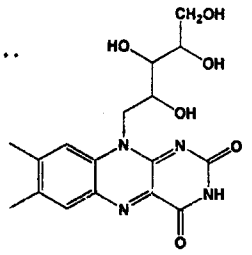
Chemical nomenclature:

e. Outline scheme for synthesis of nicotinamide from picoline ***(1.5 points)***

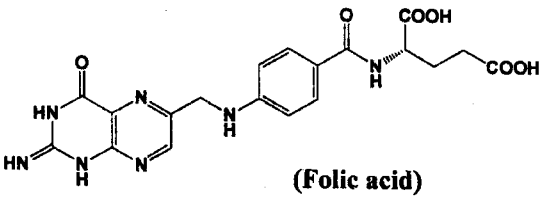
f. .....is provitamin of vitamin A; vitamin A deficiency lead to..... *(0.5 point)*

g. The generic name of the following compound is ..... *(1.5 points)*

It decomposed when subjected to ..... and .....



2. *Investigate the structure of folic acid and answer the following questions:* *(4 points)*



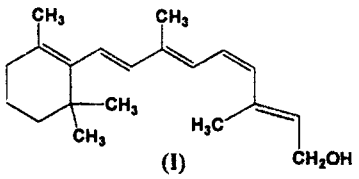
(Folic acid)

a. Folic acid must be reduced to .....its deficiency lead to.....

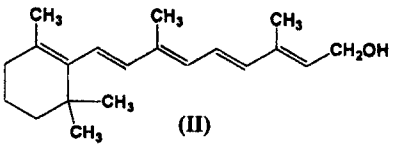
b. Its congeners such as .....used as antimetabolites

c. Discuss a method for folic acid assay.

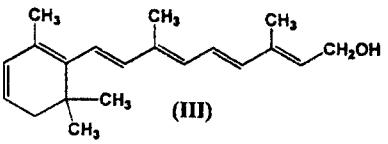
3. *Fill the following table with given compound number* *(2 points)*



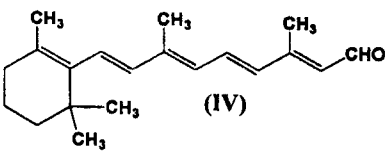
(I)



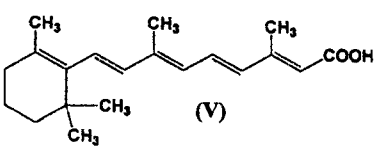
(II)



(III)



(IV)



(V)

Information	Compound number
Analog used for treatment of acne	
Analog act on vision	
Analog less active than vitamin A	
Vitamin A_2	

4. Discuss briefly method of compound II assay ***(1.5 points)***

Pharmaceutical Analytical Chemistry
Assiut University
Faculty of Pharmacy
Pharm. Anal. Chem. Dept.

Quality control and pharm. Aalysis
Final exam (Fourth Year)
16, 6 , 2013
Time allowed: 2 hours

Prof. Dr. Salwa Elshabouri

Part I.....(30 Marks).

1- Define or briefly give short notes for the following (18 Marks)

a-The main differences between QA and QC (in the form of table) (2 Marks)

b- Difference between constant error and proportional error (2 Marks)

c- WHO certification scheme for products moving in international commerce. (1 Mark)

d- Deming cycle plan (1Mark)

e- Pareto analysis (1 Mark)

f- Basic information on Six sigma (1.5 Marks)

g- Who ensures medicine quality (1.5 Marks)

h- ISO 14000 (2 Marks)

i- The process improvement cycle sheet. (2 Marks)

j- Sampling of non uniform starting materials. (2 Marks)

k- Enumerate the steps of chemical analysis (2 Marks)

2-Put (√) in front of the correct statement and (x) in front of the incorrect one and then correct it. (12 Marks)

a-The main use of q1uality control chart is to detect or reject the defect. ( )

b- Histogram: graphically represent frequency of values within a specified group. ( )

c- GLP embodies a set of principles that provides a framework within which, laboratory studies are planned, performed, monitored, reported and archived. ( )

d- Consignment: the quantity of a bulk starting material or of a drug product made by one manufacturer or supplied by an agent, and supplied at one time in response to a particular request or order.( )

e--Random sample is the sample in which the different fractions of the material have equal chances of selection. ( )

f--Sampling tools should be made from any material. ( )

g--After analysis the rest of samples can be returned to the bulk. ( )

h--Systematic errors affect measurement of precision. ( )

i- Gross error occurs as a result of human error and often lead to outlier (results that differ markedly from all other data in a set of replicate measurements) ( )

j- Minimizing personal error by calibration of the equipment and application of correction factor. ( )

k- An internal standard is a known amount of a compound, different from the analyte, added to the unknown sample. ( )

l- GMP is part of quality assurance. ( )

Dr. Hassan Refat

Part II..... (30 Marks)

1- Complete the following statements:- (16 Marks)

a- Document is

b- Traceability means that,

c- SOPs are defined by ICH as

d- Validation of analytical method is

e- Purity is

while impurity is

f- Penultimate intermediate is

while, by-products are

g- The analytical method is considered precise if the RSD% is

h- Ruggedness is

while, Robustness is

i- LOD is

while, LOQ is

j- The purpose of stability testing is

k- Chemical substances can be classified according to their purity into

I- Inactivation of gentamycin by in admixtures for injection due to

2-..... (4 Marks)

Using the data for the spectrophotometric analysis of aspirin in the following table, determine by the least square method the equation of the best straight line for the calibration curve.

Concentration in µg/ml	2	4	6	8	10
Absorbance	0.250	0.360	0.470	0.590	0.710

3-.....(4 Marks)

The following values were obtained for the determination Cd^{2+} in a sample of dust: 4.3, 4.2, 4.1, 4.0, 3.9, 4.0 and 3.2 µg/g. One value appears to be suspicious. Determine if it should be rejected or not (Tabulated $Q_{95\%} = 0.568$).

4- Write short notes on each of the following:- (6 Marks)

a- Factors affecting product stability.

b- What are stability indicating analytical methods?

c- Epimerization.

Faculty of Pharmacy	Radio-Pharmacy Final Exam	4th Year Elective course
Pharmaceutics Dept.	Lecturers: Dr. G. Soliman & Dr. M. El-Sabahy	Total mark: 60
	Date: 16/6/2013	Time allowed: 2 hours

تعليمات الامتحان:

1.الامتحان في 9 صفحات مختلفه,

2. يكتب الاسم ورقم الجلوس في الجزء الذي يمكن قطعه اخر ورقه الاجابه ويحظر الكتابه في اي جزء اخر من ورقه الاجابه

3.يجب تظليل اختيار واحد فقط لكل سؤال.

Part I: Dr. G. Soliman (30 marks, each point 0.6)

Q1-Choose the appropriate answer (ONLY ONE) for each of the followings:

1. A neutron rich radionuclide decays by.....

A) β^- particle emission, B) β^+ particle emission, C) α particle emission, D) γ rays emission.

2. The number of electrons that the principal shell *M* (n = 3) can accommodate is.....

A) 20, B) 18, C) 3, D) 9.

3. In radiopharmacy, carrier-free preparations are radionuclides that do not contain.....

A) Drug carriers, B) Stable isotope, C) Radioactive compounds, D) B & C.

4. Short-lived radionuclides are better suited for.....

A) Diagnosis, B) Therapy, C) Drug delivery, D) B & C.

5. For a radionuclide with a short half-life, the specific activity will be .....

A) Low, B) High, C) It will not be affected, D) None of the above.

6. The floor of a nuclear pharmacy should be made of .....

A) Removable tiles, B) Regular tiles covered with rubber matting, C) Porcelain D) A or B.

7. *α* particles are ..... charged and have very short range of penetration in matter.

A) Negatively, B) Neutral, C) Positively, D) None of the above.

8. Protection from external sources is dependent on.....

A) The material used for protection, B) The type of radiation emitted,

C) Half-life of the material, D) A & B.

9. The *roentgen* is the amount of ..... radiation that produces ionization of one electrostatic unit of either positive or negative charge per cubic centimetre of air at 0°C and 760 mmHg.

A) γ rays, B) α particles, C) β particles, D) Positrons.

10. The ^{99}Mo radionuclide has a half-life of 66 hr and decays by ....

A) β^- emission, B) β^+ emission, C) γ rays emission, D)All of the above.

11. Which of these materials is included in a kit for radioimmune assay?

A) A series of standard samples, B) A vial of labeled antigen,

C) A vial of antibody solution, D) All of the above.

12. In β^- decay, a neutron (n) essentially decays into .....and a β^- particle.

A) A proton, B) A positron, C) An electron, D) None of the above.

13. ^{99m}Tc is suitable for diagnostic use because.....

A) Its short half-life of 30 hours, B) It decays with energy suitable for the imaging devices,

C) It has no electron emission, D) All of the above.

14. Radionuclide generators are important because.....

A) They are easily transportable, B) They are used to produce short-lived radionuclides,

C) A&B, D) Neither A nor B.

15. Radiopharmacies do not purchase ^{99m}Tc directly, but instead purchase a technetium generator which contains .....

A) Molybdenum-99, B) Indium-111, C) Iodine-131, D) None of the above.

16. Kits used in radiopharmacies have the following characteristics....

A) They are sterile, B) They contain freeze dried ingredients,

C) They contain radioactive materials, D) A&B.

17. In a radiopharmacy, kits should not be tested for.....

A) Sterility, B) Pyrogenicity, C) Labeling efficiency, D) All of the above.

18. The dose calibrator is an essential equipment in radiopharmacy and it is used for.....

A) Measuring the activity of radionuclides, B) Measuring exposure to radiation,

C) Measuring type of emitted radiations, D) All of the above.

19. Geiger-Muller counters operate at high voltage (1000 V) to....

A) Allow passage of beta particles and low energy gamma radiations,

B) Allow detection of low level beta and gamma radiations,

C) To detect all kinds of radiations,

D) All of the above.

20. Scintillation detecting instruments are mainly used to detect...

A) Alpha particles, B) Beta particles, C) Gamma rays, D) All of the above.

21. The main advantage of tomographic techniques of imaging is that they give.....

A) The distribution of the radionuclide in the body, B) The depth of the object of imaging,

C) Two-dimensional displays of the object, D) All of the above.

22. The following problems should be kept in mind during the design of a radiopharmacy...

A) Protection of personnel from radiation hazard, B) Avoidance of contamination of work area,

C) Clean air circulation in the dispensing area, D) All of the above.

23. The laboratory area where compounding and dispensing in a radiopharmacy are done should be equipped with workbenches made of.....

A) Wood, B) Stainless steel, C) Ceramic, D) A or B.

24. Essential equipment in a radiopharmacy include.....

A) A dose calibrator, B) Radiation survey meter, C) Lead-lined refrigerators, D) A, B &C.

25. ^{99m}Tc-labeled radiopharmaceuticals are prepared daily and the labelling efficiency must be determined by.....

A) Thin-layer chromatography, B) Paper chromatography,

C) Gas chromatography, D) A or B.

26. Sterility and pyrogen tests of short-lived radionuclides should be conducted.....

A) After the preparation, B) After they are given to the patient,

C) Before the preparation, D) None of the above.

27. ^{99m}Tc-labeled macroaggregated albumin should be stored at.....

A) At room temperature, B) In the fridge,

C) In the freezer (at -20 C), D) None of the above.

28. Each prescription or requisition in a radiopharmacy should contain.....

A) Patient's name B) Identification number (clinic or hospital number),

C) Age of the patient, D) All of the above.

29. The best method to get rid of waste of a radionuclide having a half-life of 45 days is.....

A) Burial in a landfill, B) Release into sewerage system,

C) Decay-in-storage, D) Incineration.

30. .....is not a good method to get rid of infectious waste generated in a radipharmacy.

A) Incineration, B) Chemical treatment,

C) Burial in a landfill, D) Steam or dry sterilization.

31. Radiopharmaceuticals prepared in a centralized radiopharmacy should be tested for....

A) Radiochemical purity, B) Sterility,

C) Apyrogenicity, D) All of the above.

32. Unrestricted area is an area in which an individual could receive from an external source a maximum dose of .....

A) 2 mrem, B) 6 mrem, C) 10 mrem, D) None of the above.

33. The caution signs and labels used in a radiopharmacy use a background of.....color.

A) Black, B) Yellow, C) Magenta, D) Purple.

34. The damaging effect of the radiations on the body can be arranged in a descending order as follows...

A) α particles > β particles > γ rays, B) β particles > α particles > γ rays,

C) γ rays > β particles > α particles, D) None of the above.

35. The intensity of a radiation source, and hence the radiation exposure, varies .....with the square of the distance.

A) Directly, B) Inversely, C) Does not depend on the distance, D) B or C.

36. Lead is the most commonly used material to protect against the following radiations....

A) γ rays, B) β particles C) α particles, D) All of the above.

37. The thickness of shielding that reduces the exposure from a radiation source by one half is called...

A) Half-layer, B) Half-value layer, C) Half-life of material, D) None of the above.

38. The best method to get rid of a waste of radioactive material having a half-life of 2 years is....

A) Incineration, B) Chemical treatment,

C) Burial in a landfill, D) A or C.

39. The exposure of ionizing radiations received by an individual is measured by....

A) Dose calibrator, B) The pocket dosimeter, C) The film badge, D) B or C.

40. One of the disadvantages of.....is that it requires frequent charging to reuse.

A) Dose calibrator, B) The pocket dosimeter, C) The film badge, D) B or C.

41. Differentiation between radiations of different types and energies in the film badge is achieved by using filters of....

A) Aluminum, B) Copper, C) Cadmium, D) All of the above.

42. The long waiting period before the exposed personnel know about their exposure to radiation is the main disadvantage of.....

A) Geiger-Muller, B) The pocket dosimeter, C) The film badge, D) Dose calibrator.

43. .....is a radiation unit used to measure radiation absorbed dose.

A) The Roentgen, B) The curie, C) The rad, D) None of the above.

44. ^{125}I-antigens are used in radio-immune assays because.....

A) They have short half-life, B) They have suitable energy,

C) It is easy to introduce iodine atoms into tyrosine of a protein, D) None of the above.

45. Radio-immune assay can be used to measure .....

A) Red blood cell survival time, B) Blood volume,

C) Examination of donated blood for hepatitis B, D) All of the above.

Q2- Choose (A) for the true statement and (B) for the wrong one for each of the following.

46. Nuclei with even number of protons or neutrons are more stable than those containing an odd number of protons or neutrons.

A-True, B-False

47. In smaller institutions, where the patient load is not heavy, the use of kits is not preferred.

A-True, B-False

48. The film badge gives immediate reading after exposure to radiation.

A-True, B-False

49. For constant amounts of antibody and labeled antigen, the amount of bound antigen will be inversely proportional to the quantity of unlabelled antigen.

A-True, B-False

50. Electron capture is usually accompanied by *X* ray emission.

A-True, B-False

Part II: Dr. M. El-Sabahy (30 marks, each point 0.6 mark)

Q1-Choose the appropriate answer (ONLY ONE) for each of the followings:

51. Activity ratio is related to:

A) Organ localization, B) Biodistribution, C) Protein binding, D) All of the above.

52. Among the most important parameters used to describe radiopharmaceuticals is:

A) Energy, B) Activity ratio, C) Availability, D) Type of radiation.

53. Which of the following radio-labeling methods results in minimal changes of the biological and chemical properties of radiopharmaceuticals:

A) Isotope Exchange Reactions, B) Introduction of a Foreign Label,

C) Labeling with Bifunctional Chelating Agents, D) All of the above

54. Important quality control tests for radiopharmaceuticals include:

A) Geometry, B) Accuracy, C) Linearity, D) All of the above.

55. Biological tests are carried out essentially to examine ..... of radiopharmaceuticals before clinical use.

A) Toxicity, B) Physical characteristics, C) Osmolality, D) None of the above.

56. The method of choice in sterilization of short lived radionuclides is:

A) Autoclaving, B) The use of disinfectant, C) Membrane filtration, D) None of them.

57. Which of the following can be a feature of *in vivo* diagnostic radionuclide?

A) Half-life 6 months and photon energy of 150 keV

B) Half-life of 10 hours and photo energy of 60 keV

C) Half-life of 12 hours and photon energy of 300 keV

D) None of the above.

58. Radiopharmaceuticals labeled with β-emitting radionuclides are:

A) Used as therapeutic agents, B) Mainly restricted to *in vivo* experiments

C) Used for imaging (as diagnostic agent), D) None of them.

59. The endotoxin can be removed by one of the following:

A) LAL test, B) Autoclaving, C) Filtration, D) None of them.

60. Regarding the indirect radiolysis, which is true?:

A) Decomposition of the solvent by radiation produces free radicals that break down the bonds of the labeled compound,

B) Occur more in acidic pH,

C) Occur more in alkaline pH,

D) All of the above

61. ..... is an excellent bone imaging agent.

A) ^{111} In-DTPA, B) ^{131}I-iodinated albumin,

C) ^{133}Xe, D) ^{99}m Tc methylene diphosphonate.

62. Which of the following radiations would be the most desirable for radionuclide imaging?

A) 15 keV gamma, B) 150 keV beta, C) 150 keV gamma, D) 1500 keV gamma.

63. The loss of activity of radiopharmaceuticals is due to:

A) Physical decay of the radionuclide, B) Biological elimination of the radiopharmaceuticals

C) Both A &B, D) None of them.

64. Regarding Limulus amebocyte lysate (LAL) test, which of the following is true?

A) Used for removal of endotoxins from preparation, B) Must be stored at 4 °C,

C) Utilized for detection of endotoxin-type pyrogens, D) B and C.

65. The difference between radio-chemicals and radiopharmaceuticals is:

A) Sterility, B) Activity, C) Pyrogenicity, D) Both A & C.

66. Perfusion imaging of the lungs is effective in diagnosis of:

A) Pulmonary embolism, B) Pulmonary tumor,

C) Pulmonary Tuberculosis, D) All of the above.

67. Ventilation studies of the lungs indicate:

A) Airway obstruction, B) Emphysema, C) Bronchitis, D) All of the above.

68. Chromatography procedures in nuclear medicine are used to determine:

A) Radiochemical toxicity, B) Radiochemical purity,

C) Radioactive decay, D) Radiochemical sterility.

69. Ion exchange chromatography is based on:

A) Electrostatic interactions, B) Electrical mobility of ionic species,

C) Adsorption chromatography, D) Partition chromatography.

70. ..... is the most common technique utilized for detection of proteins and nucleic acids.

A) HPLC, B) Gel electrophoresis,

C) Ion exchange chromatography, D) Thin layer chromatography

71. The agent of choice for assessing thyroid functional and structural status is:

A) Technetium, B) Iodine, C) Molybdenum, D) None of the above.

72. ^{131}I treatment is contraindicated in:

A) Pregnant women, B) Elderly patients, C) Glaucoma Patients, C) All of the above.

73. Most current gene therapy trials target:

A) Cancer, B) SCID deficiency, C) Cystic fibrosis, D) HIV.

74. Diffusible radiopharmaceuticals which are used in CNS imaging are:

A) Hydrophilic, B) Polar, C) Lipophilic, D) B & C.

75. ^{99}m Tc-labeled iminodiacetic acid is visible in the gall bladder in normal subject after:

A) 10 min, B) 30 min, C) 4 hours, D) 8 hours.

76. Which of the following is used to evaluate the phagocytic function of Kupffer cells of the liver:

A) ^{99}m Tc sulfur colloid, B) Lipophilic compound labeled with radionuclide,

C) ^{99}m Tc- iminodiacetic acid, D) B & C.

77. Which of the following will increase the cellular uptake of nucleic acid drugs?

A) Formation of lipoplexes, B) Coating with hydrophilic polymer,

C) Using target ligands, D) A & C.

78. Gallbladder is not visualized as long as 4 hours after administration of ^{99}m Tc- iminodiacetic, is an indication of:

A) Acute cholecystitis, B) Chronic cholecystitis, C) Normal, D) None of them.

79. The size of colloids used in spleen imaging should not exceed:

A) 100 nanometer, B) 1 Micrometer, C) 5 Micrometer, D) None of them.

80. Regarding antisense oligonucleotides, all is true except:

A) Typically 15-30 base pair long, B) Double stranded,

C) Both therapeutic & diagnostic agents, D) Single stranded.

81. Physical methods for introducing genes into the cell include:

A) Microinjection, B) Electroporation, C) Conjugation to lipophilic materials, D) A & B.

82. All of the followings are barriers affect both hydrophobic & nucleic acid drugs except:

A) Immunity, B) Toxicity, C) Charge, D) Targeting.

83. Regarding delivery of drugs, a barrier affects nucleic acid drugs more than hydrophobic drugs is:

A) Stability, B) Targeting, C) Both of them, D) None of them

84. Chemical methods for introducing genes into the cell include:

A) Microinjection, B) Electroporation,

C) Conjugation to lipophilic materials, D) None of the above.

85. Coating positively charged complex of DNA/RNA with hydrophilic polymer overcomes the problems of:

A) Targeting, B) Toxicity, C) Solubility, D None of the above.

86. The shelf-life depends on:

A) Physical half-life of the radionuclide, B) The solvents,

C) A and B, D) None of the above.

87. What is the test employed for the detection of endotoxin-type pyrogens?

A) Limulus amebocyte lysate (LAL), B) Sterility test,

C) Endotoxin wipe test, D) None of the above.

88. What is the method of choice for sterilization of short-lived radionuclides and heat-labile radiopharmaceuticals?

A) Filtration, B) Autoclaving, C) Hot air oven, D) None of the above.

89. Complexation of drugs with positively charged polymers:

A) Increases cellular uptake, B) Decreases toxicity,

C) Both of the above, D) None of the above.

90. All of the followings are barriers affecting delivery of hydrophobic drugs except:

A) Charge, B) Immunity, C) Toxicity, D) Targeting.

91. Charge is an important parameter that affects the delivery of:

A) Hydrophobic drugs, B) Nucleic acids,

C) Both of the above, D) None of the above.

92. Requirements for intravenous injection solutions include:

A) Sterility, B) Controlled release,

C) High radiochemical purity, D) All of the above.

Q2- Select (A) for the true statement and (B) for the false one for each of the following.

93. High activity ratio is required for efficient radiopharmaceuticals.

A) True, B) False.

94. Energy and activity ratio are the most two important parameters to describe radiopharmaceuticals.

A) True, B) False.

95. Availability and type of radiations are among the factors to be considered during the design of radiopharmaceuticals.

A) True, B) False.

96. Biosynthesis technique involves minimal changes in the chemical and biological properties of radiopharmaceuticals.

A) True, B) False.

97. The sterilization technique depends mainly on the composition of radiopharmaceuticals but not on the type of radioactive isotope.

A) True, B) False.

98. Diffusible radiopharmaceuticals which are used in CNS imaging are amphiphilic.

A) True, B) False.

99. Protein binding and biodistribution affect the activity ratio of radiopharmaceuticals.

A) True, B) False.

100. Liver consists mainly of phagocytic cells known as Kupffer cells.

A) True, B) False.

********* *End of questions, Best wishes!* **********