Anatomy

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3 January 2000

Illustrate your answers with diagrams whenever possible:

1- Mention the beginning, end and branches of the axillary artery.

2- Enumerate the structure passing deep to the flexor retinaculum.

3- Draw a diagram for impressions on the mediastinal surface of the right lung.

4- Enumerate contents of the superior mediastinum.

5- Enumerate the derivatives of the Entoderm.

6- Illustrate in a diagram only phases of the menstrual cycles.

7- Mention functions of the bone.

8- Mention the sites for identification of the sex chromatin.

9- Illustrate with a diagram only a section of the testis.

May 2000

Illustrate your answers with diagrams if possible:

1- **Enumerate** the muscles producing abduction of the shoulder joint. **Mention** the role of each muscle in this movement and their nerve supply.

2- **Describe** the course and motor distribution of the ulnar nerve I forearm and hand.

3- **Mention** the formation and contents of the rectus sheath.

4- **Describe with a diagram** the course and distribution of the coeliac artery and its branches.

5- **a- Mention** the relations, peritoneal covering and arterial supply of the rectum.
b- Mention the boundaries of the ischio-rectal fossa.

6- **Illustrate with a diagram only the following:**

- **a-** The relations of the mediastinal surfaces of right and left lungs.
- **b-** The course and branches of the right coronary artery.

7- **Give an account on:**

- **a-** Oogenesis.
- **b-** Derivatives of the mesoderm.
- **c-** Types of chorionic villi.
- **d-** Structure of atypical synovial joint.
- **e-** Indications of sex chromatin analysis.
- **f-** Growth data.

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January 2001

Illustrate your answers with diagrams whenever possible:

1- Illustrate with a diagram only the formation and branches of brachial plexus.

2- Enumerate the long flexor tendons passing deep to the flexor retinaculum. Mention the nerve supply of their muscles.

3- Enumerate the contents of the superior mediastinum.

4- Draw a diagram for the surface marking, of the right lung and its fissures.

5- Mention three indications of chromosomal analysis.

6- Draw a diagram showing structures of the synovial joint.

7- Mention the derivatives of the somite.

8- Mention the fate of the corpus lute urn.

May 2001

Answer the following questions:

1- Illustrate with a diagram the roots, parts and branches of the brachial plexus.

2- Enumerate the muscles attached to the index finger and their nerve supply. Mention their action on this finger.

3- Illustrate with a diagram only the surfaces markings of the left pleura lung.

4- Mention the course and branches of the left coronary artery.

5- Mention wall constituents of rectus sheath and enumerate its contents.

6- Describe with a diagram the relations and arterial supply of the stomach.

7- Mention the beginning, end, peritoneal covering, relations and supply of the rectum.

8- Mention boundaries of the ischio-rectal fossa.

9- Give an account on each of the following:

- **a-** Derivatives of the intra-embryonic mesoderm.
- **b-** Abnormalities of the placenta.

10- Give a short account on each of the following:

- **a-** Enumerate functions of bones.
- **b-** Indications for sex chromosomal analysis.
- **c-** Growth data.

September 2001

Answer the following questions:

1- Mention the beginning, termination, relations and branches of the axillary artery.

2- Mention the course and distribution of the median nerve in the hand.

3- Illustrate with a diagram the mediastinum surface of the left lung.

4- Mention the site, tributaries and drainage of the coronary sinus of the heart.

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5- Mention the coverings and constituents of the spermatic cord.
6- Describe with a diagram the relations of the left kidney and its surface markings.
7- Mention the position and relations of the urinary bladder.
8- Enumerate the contents of the superficial perineal pouch in male.
9- Give an account on each of the following:
    a- The definition, steps, site and results of fertilization.
    b- The function and anomalies of the amnion.
    c- A diagram showing the structure of mature Graffian Follicle.
10- Give a short account on each of the following:
    a- Types of joints with an example for each type
    b- Phases of growth.
    c- Indications for sex chromosomal analysis.

January 2002

Answer the following questions:

1- Illustrate with a diagram only the surface markings of the anterior and lower borders of the left pleura and left lung.
2- Enumerate the branches of the ascending aorta and arch of the aorta.
3- Mention the boundaries of the inguinal canal.
4- Mention the structures related to the anterior and posterior surface of the left kidney.
5- Mention four derivatives of the endoderm.
6- Mention stages of spermatogenesis up to spermatids.
7- Illustrate with a diagram the general structure of synovial joint.

May 2002

Answer the following questions:

1- **Give an account on** the definition and boundaries of the axilla. Enumerate its contents.
2- **Give an account on** the course and motor distribution of median nerve in forearm and hand.
3- **Illustrate with a diagram only each of the following:**
    a- Surface markings of the heart and its valves.
    b- The relations of the mediastinal surface of the left lung.
4- **Describe** with a diagram the site, relations and arterial supply of the stomach.
5- **Mention** with a diagram the formation and tributaries of the portal vein. Give an account on the porto-systemic anastomoses.

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6- **Mention** the position, relations and arterial supply of the uterus.

7- **Enumerate** the contents of the superficial perineal pouch in male.

8- **Give an account on each of the following:**

   a- Function and anomalies of the amnion.

   b- Derivatives of the ectoderm.

   c- Anomalies of the placenta.

9- **Give an account on each of the following:**

   a- Phases of growth.

   b- Sex chromatin body.

   c- Main features of superficial fascia.

September 2002

Answer the following questions:

1- Mention the course, relations and branches of the axillary artery.

2- Describe with a diagram the sensory supply of the palmar and dorsal surfaces of the hand and fingers.

3- Illustrate with a diagram only the relations of the mediastinal surfaces of the right and left lungs.

4- Mention the site and enumerate the tributaries of the coronary sinus.

5- Mention the formation of the rectus sheath and enumerate its contents.

6- Describe with a diagram the course and distribution of the coeliac trunk.

7- Mention the beginning, end, peritoneal covering relations and blood supply of the rectum.

8- Give an account on each of the following :

   a- Derivatives of the intra-embryonic mesoderm.

   b- Development and function of the yolk sac.

   c- Chorionic villi.

   d- Growth spurts.

   e- Indications of chromosomal analysis.

   f- General structure of synovial joint.

January 2003

Answer the following questions:

1- Illustrate with a diagram only the formation of the brachial plexus.

2- Enumerate the muscles producing abduction of the upper limb. Mention their nerve supply.

3- Illustrate with a diagram the sensory supply of the palmar surfaces of the hand and fingers.

4- Mention definition, site and results of fertilization.

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5- Enumerate 4 derivatives of mesoderm.

6- Illustrate with a diagram only the surface markings of the left pleura.

7- Enumerate branches of the arch of the aorta.

8- Mention structure of synovial joint.

January 2003

1- Enumerate the muscles producing abduction of the upper limb above the head and their role in the movement.

2- Enumerate the branches of the axillary artery.

3- Enumerate the structures passing deep to the flexor retinaculum.

4- Enumerate the muscles producing flexion of the index finger at the metacarpo-phalangeal joint.

5- Illustrate with a diagram only the relations of the mediastinal surface of the left lung.

6- Illustrate with a diagram the surface anatomy of the borders of the heart.

7- Illustrate with a diagram only the structures of the mature graffian follicle.

8- Enumerate five derivatives of the ectoderm.

9- Mention three indications for chromosomal analysis.

10- Enumerate types of bones according to shape and give example for each type.

March 2003

Answer the following questions:

1- Give an account on beginning course, relations, end and branches of axillary artery.

2- Illustrate with diagrams motor and sensory innervations of the hand.

3- Define the typical inter-costal nerves and illustrate their course and branches.

4- Give an account on beginning, course, end and tributaries of the azygos vein.

5- Define the inguinal canal and give an account on its beginning, course, end, boundaries and contents.

6- Illustrate position, relations, peritoneal covering blood supply, ligaments and surface marking of spleen.

7- Describe parts, the normal position, peritoneal covering, relations, blood supply and factors supporting of the uterus.

8- Illustrate the structure of the chorion and chorionic villi.

9- Mention derivatives of ectoderm.

10- Mention function and types of bones with an example for each type.

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May 2003

Answer the following questions:

1- Mention beginning, end, course and branches of axillary artery.

2- Mention course and motor branches of ulnar nerve in forearm and hand.

3- Illustrate with a diagram the venous drainage of posterior thoracic wall.

4- Illustrate with a diagram the surface anatomy of the heart.

5- Describe with a diagram the boundaries and contents of the inguinal canal.

6- Describe with a diagram the position, relations, and blood supply of the right and left kidneys.

7- Mention the position, relations and arterial supply of the urinary bladder.

8- Mention boundaries and contents of the superficial perineal pouch in male and female.

9- Mention the phases of the uterine cycle and the changes that occur during each phase.

10- Mention the development and anomalies of the umbilical cord.

11- Give an account on each of the following:

- **a-** Deletion.
- **b-** Growth spurts.
- **c-** Mention with a diagram the different types of joints.

September 2003

Answer the following questions:

1- Illustrate with a diagram the formation and branches of the brachial plexus.

2- Illustrate with a diagram the sensory supply of the palmar and dorsal surfaces of the hand and fingers.

3- Illustrate with a diagram the relations of the mediastinal surfaces of the right and left lung.

4- Mention the course and tributaries of the coronary sinus.

5- Describe with a diagram the formation of the rectus sheath and enumerate its contents.

6- Describe with a diagram the course and branches of the coeliac trunk.

7- Describe with a diagram the position, parts, peritoneal covering, relations and arterial supply of the uterus.

8- Mention the development, function and anomalies of the amnion.

9- Mention formation, subdivision and derivatives of the intra-embryonic mesoderm.

10- Give an account on each of the following:

- **a-** Indications for chromosomal analysis.
- **b-** Types of bones giving example for each type.
- **c-** Growth curves.

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January 2004

Answer the following questions:

1- Illustrate with a diagram roots, trunks, divisions, cords and terminal branches of brachial plexus.
2- Enumerate structure passing deep to extensor retinaculum.
3- Mention boundaries and contents of cubital fossa.
4- Mention boundaries of inguinal canal.
5- Mention origin, termination and branches- of-superior mesenteric artery.
6- Mention results of fertilization.
7- Write a short account on stages of uterine cycle.
8- Enumerate types of bones arid mention one example for each.
9- Mention structure of a synovial joint

May 2004

Answer the following questions:

1- Discuss anatomy of axillary artery (beginning, end, divisions and branches).
2- Discuss supination and pronation (joints at which they occur- origin, insertion, nerve supply and role of the muscles producing them).
3- Discuss anatomy of portal vein (beginning, termination, tributaries and 3 main sites of porto-systemic anastomosis).
4- Illustrate with a diagram surface anatomy of right pleura and right lung.
5- Illustrate with a diagram relations of right and left kidneys.
6- **A)** Mention boundaries and contents of superior mediastinum.
   B) Mention boundaries and contents of ischeo-rectal fossa.
7- Discuss position, relations and arterial supply of the uterus.
8- Write a report on fertilization (definition, site, steps and results).
9- Write a report on anatomy of the spinal nerves.
10- Write a report on placenta (congenital anomalies and functions).

September 2004

Answer the following questions and illustrate with a diagram as possible as you can:

1- **Mention** stages of formation of brachial plexus.
2- **Write a report on** motor and sensory innervations of the hand.
3- **a- Mention** relations of mediastinal surface of the right lung.
   b- Mention anatomy of interior of right atrium.

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4- **Write a report on:**
    - **a-** Walls and contents of rectus sheath.
    - **b-** Posterior relations and arterial supply of stomach.
5- **Write a report on** site, morphology, relations and arterial supply of urinary bladder.
6- **Write a report on each:**
    - **a-** Anomalies and function of amniotic sac.
    - **b-** Derivatives of ectoderm.
    - **c-** Definition and process of implantation.
7- **Mention:**
    - **a-** Types of bones.
    - **b-** Structure of a synovial joint.

January 2005

Answer the following questions:

1- Draw a labeled diagram of spinal nerve
2- Superficial fascia (Definition and Contents).
3- Flexor retinaculum (relations).
4- Axilla (Boundaries and Contents).
5- Inguinal canal (Boundaries).
6- Constituents of spermatic cord.
7- Draw a diagram of mature ovarian follicle.
8- Write a short note on spermiogenesis.

21 January 2005

Answer the following questions:

Upper limb

1- Give a short account on clavipectoral fascia.
2- Anastomosis around the scapula.
3- Origin, distribution and injury of axillary nerve.
4- Boundaries and contents of the anatomical snuff box.

Abdomen

1- Mention the constituents of the spermatic cord.
2- Mention parts, peritoneal covering and posterior relations of the stomach.

General embryology

1- Oogenesis (with diagram only).
2- Differentiation of the somite.

Introduction

1- Types of the synovial joint (Give an example for each type).

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May 2005

Answer the following questions:

1- Discuss boundaries and contents of the axilla.

2- Discuss root value, origin, course and branches of median nerve in forearm and hand.

3- Discuss definition, types, course and branches of intercostals nerves.

4- Write a report on anatomy of spermatic cord.

5- Write a report on anatomy of the spleen.

6- Write a report on anatomy of the uterus.

7- Write a report on the placental functions.

8- Write a report on fertilization.

9- Write a report on umbilical cord (development anomalies).

10- Describe anatomy of superficial fascia.

August 2005

Answer the following questions:

I) Upper limb:

1- Discuss boundaries & contents of the cubital fossa.

2- Discuss the anatomy of the female breast.

3- Discuss root value, course and branches of the ulnar nerve in the forearm and hand.

II) Thorax:

1- Describe the boundaries of the oblique sinus of the pericardium.

2- Structures in the root of the right lung.

III) Abdomen:

1- The formation and contents of the rectus sheath.

2- Write a report on the capsules and posterior relations of the kidney.

3- Branches of the abdominal aorta and their levels.

IV) Pelvis and Perineum:

1- Origin, insertion, nerve supply and action of the levator and muscle.

2- Contents of the superficial perineal pouch in male.

V) General embryology:

1- Differentiation of the somite.

2- Types of the chorionic villi.

3- Phases of the menstrual cycle.

VI) Human biology:

1- Give an account on the cartilaginous joint.

2- Give characteristic and function of the deep fascia.

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May 2006

Upper limb: just mention:

1- Boundaries and content of the quadrangular space in shoulder region.
2- Lymphatic drainage of the breast.
3- Formation and branches of the superficial palmar arch.
4- Branches of the radial nerve in axilla & arm and effect of its injury.

Thorax: just with diagram:

1- Main differences between right and left hilum (root) of lungs.
2- Interior of the right atrium.
3- Beginning and termination &branches of the aortic arch.

Abdomen: just mention:

1- Attachment and contents of the lesser omentum.
2- Measurement, parts, peritoneal covering and blood supply of duodenum. Write note on the duodenum papillae.
3- Posterior relations of the kidneys.
4- Blood supply of the right supra renal gland.

Pelvis: give a short account on:

1- Posterior relations of the male urinary bladder.
2- Sphincters of the anal canal.
3- Parts, position, peritoneal covering and lymph drainage of the uterus.
4- Root value branches of pudendal nerve.

General embryology:

1- Phases of fertilization.
2- Results of folding.
3- Implantation definition, normal and abnormal sites.
4- Mature Graffian follicle (diagram only).

Human biology:

1- Give an account on bone, types, blood supply and nerve supply.

August 2006

Answer the following questions:

VII) Upper limb:

a) Beginning, end, parts and branches of each part of the axillary artery.
b) What is meant by pronation and supination, mention joints at which these movements occur, muscles producing these movements and in tabulated form mention origin insertion, action and nerve supply of these muscles?
c) Illustrate with diagram motor and sensory innervation of the hand.

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VIII) Thorax:

- **a)** Illustrate with a diagram boundaries and contents of superior mediastinum.
- **b)** Illustrate with a diagram surface markings of the heart and its great values.

IX) Abdomen:

- **a)** Mention boundaries and contents of inguinal canal.
- **b)** Illustrate with diagram distribution of the superior mesenteric artery.
- **c)** Mention origin, insertion, action and nerve supply of the abdominal diaphragm and also mention the levels of its three main openings and structures passing through these openings.

X) Pelvis and Perineum:

- **a)** Beginning, end and branches of the internal iliac artery.
- **b)** Illustrate with a diagram boundaries and contents of the ischiorcetal fossa.

XI) General embryology:

- **a)** Normal and abnormal sites of implantation and mention the process of implantation.
- **b)** Mention derivatives of the ectoderm.
- **c)** Gross picture of the normal placenta and mention the placental abnormalies.

XII) Human biology:

- **a)** Mention functions and types of bones with an example to each type

Give the missing word (s):

1- In the parts of hands, the superficial fascia is ……. Attached to the ……. Fat is absent from the superficial fascia of ……,……and……

2- In unipennate muscle, the tendon lies …….. And the muscle fibers pass …….. to it. Example of these muscles is ……

3- Bone is developed by two methods:

a- ……..... and **b-** ……

4- Ovulation is the …….. of …… with liberation of the ……and ……. It is usually occurs at the ……..of the menstrual cycle.

5- Fertilization is the …….. of the ……. and …….. to form ……. It occur in the …….of the ……..

6- The unfertilized ovum has …….. coverings:

a- …… and **b-**..……

7- Cleavage means ……...resulting in …….

8- The morula reaches the uterine cavity on ……..day.

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9- Each somite is differentiated into:

a- …… part called the ……

b- ……..... part called ……that is further subdivided into …….. and …… the ……..... gives the dermis while the ……give rise to the skeletal muscles.

10- The normal site of implantation occurs at ……plane of the upper part of the ……wall of the uterus; while the abnormal sites are…..……..., …….. and …….

11- The breast is composed of:

a- ……..

b- ……..

c- ……..

12- The clavipectoral fascia is pierced by:

a- ……...

b- ……...

c- ……...

and **d-** ……..

13- The axilla has the form of a ……..

14- The axillary artery begins at the …….. border of the …… as a direct continuation of the …….

15- The …….muscle is the powerful protractor of the scapula. It is supplied by ……..nerve, whose root values are……...

16- The ……..muscle is the powerful supinator of the ……. when the elbow is……

17- Pronation and supination of the ……occur at ……. joints.

18- Ape hand is due to ……of the ……..nerve, while partial claw hand is due to …….of the …….nerve and wrist drop is due to …….. of the ……..nerve, while flat shoulder is due to ……of the……...nerve.

19- The internal thoracic artery arises from the …… part of the ……

20- The mediastinum is …….

21- The trachea ends by its bifurication into …….main …….. at the level of …….

22- The apex of the lungs extends in ……..for about ……... inch above the junction of the …… and ……. of the……..

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23- The left bronchial arteries arise from the ……..while the right bronchial artery may arise from……...or from…….

May 2007

Your answers must be illustrated with diagrams:

1- Site, components relations, blood supply and lymphatic drainage of the breast.

2- Distribution of median nerve and effects of its injury.

3- Surface markings of: kidney, spleen, vermiform appendix, and fundus of the gall bladder.

4- Distribution of the superior mesenteric artery.

5- Beginning, course, end, tributaries of the portal vein and mention sites of Porto systemic anastmosis and their clinical importance.

6- Position, parts, peritoneal coverings, relations, blood supply of uterus and mention factors supporting the uterus.

7- Boundaries and contents of the ischiorectal fossa.

8- Definition, time, period and stages of uterine cycle.

9- Differentiation and derivatives of intraembryonic mesoderm.

10- Congenital anomalies of the placenta.

11- Structure of the superficial fascia.

12- Muscle form.

13- Suprapleural membrane.

14- Coronary arteries.

15- Root of the lung.

August 2007

Your answers must be illustrated with diagrams:

1- Beginning, course, end and branches of axillary artery.

2- Motor and sensory innervations of the hand.

3- Surface markings of the heart and its valves.

4- Definition of the mediastinum, mention its parts, boundaries and contents of each part.

5- Position, relations peritoneal covering blood supply of kidneys.

6- Coverings and components of the spermatic cord.

7- Position, peritoneal covering, relations and blood supply of the urinary bladder.

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8- Boundaries and contents of the superficial perineal pouch in both sexes.

9- Derivatives of the ectoderm.

10- Definition, process, normal and abnormal sites of implantation.

11- Functions and congenital anomalies of the amnion.

12- Muscle form and example of each form.

13- Contents and congenital anomalies of the umbilical cord.

June 2008

Answer the following questions:

1- Mention the components of shoulder girdle and illustrate by a table its movements and muscles acting these movements with their nerve supply.

2- Give an account on site, boundaries, contents and clinical importance of anatomical snuff box.

3- Give an account on anatomy of the conducting system of the heart and also illustrate the fibrous skeleton of the heart.

4- Illustrate with a diagram venous drainage of the posterior thoracic wall.

5- Illustrate with a diagram only the extra-hepatic biliary passages.

6- Illustrate with a diagram only anatomical structures of the stomach bed.

7- Illustrate with a diagram only anatomical structures of the wall of the scrotum.

8- Illustrate with a diagram only posterior relations of the kidneys.

9- Illustrate with a diagram shape, site, surfaces, relations, lobes, blood supply and lymph drainage of the prostate.

10- Give an account on anatomy of external anal sphincter.

11- Define the following processes:

- **a-** Spermiogenesis.
- **b-** Ovulation.
- **c-** Fertilization.
- **d-** Implantation.
- **e-** Cleavage.

12- Illustrate with diagrams the process of formation the notochord and mention its function and the remnants of it.

13- Mention functions, fate and anomalies of the amnion.

14- Mention, in general, anatomical structures supplied by anatomical nervous system and mention its parts and give the connector cells of each part.

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May, 2009

Answer the following questions:

1- The stability of a joint depends on three main factors comment.

2- After rupture of the ovarian follicle one of two events must occur Discuss such events.

3- At birth the umbilical cord is tied off close to the umbilicus. It is advisable to leave about 2 in. of cord between the umbilicus and ligature. Why is such advice? Mention, also contents of umbilical cord and changes occur on such contents, also mention anomalies of the cord and their complications.

4- Mention function of notochord and its remnants.

5- Illustrate, by a table parts of conducting system of the heart with their anatomical sites.

6- Give an account on beginning, course, end and tributaries of azygoes veine.

7- The inguinal canal is a weak region in the lower part of anterior abdominal wall. Mention boundaries and contents of the inguinal canal and also mention its support.

8- Mention beginning, course, end and branches of abdominal aorta.

9- Enumerate anatomical sites of the vermiform appendix, and give marking surface of the appendix.

10- Give an account on structure, shape, relations, capsules, lobes and blood supply of prostate.

11- Give an account on external anal sphincter.

12- Illustrate, by a table type, subtype, articular parts, movements of shoulder joint and muscles acting such movements with their never supply.

13- Mention root value, course, distribution of median never and discuss effect of its injury.

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Biochemistry

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January 2000

Answer the following questions:

I- Write the formula only of:

1- Three amino acids one of them containing sulfur.

2- Three fatty acids one of them is essential.

3- Two sugar acids.

4- Two sugar alcohols.

5- Two phospholipids.

II- Give an account on:

1- Scleroproteins.

2- Rancidity.

3- Sialic acid.

4- Denaturation.

March 2000

Answer the following questions:

III- Write on:

1- Two differences between coenzyme and prosthetic group.

2- Two factors affecting the rate of enzyme reaction.

3- Two enzyme specificity.

IV- Give an account on:

1- Isozyme.

2- Zymogen.

3- Anti-enzyme.

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May, 2000

All questions to be answered formulae are a must whenever possible:

I- Mention:

1. Two vitamins containing sulfur (functions and formulae).
2. Two hydrogen carriers.
3. Two mechanisms by which parathyroid hormone shares in regulating plasma calcium.
4. Differences between group I and group II hormones.
5. Differences between RNA and DNA.

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II- On biochemical basis explain:

1. Rancidity.
2. Effects of reduction on monosaccharides.
3. Denaturation of proteins.
4. Active transport.
5. Albuminiods.

III- Write on:

1. Prostaglandins.
2. Glutathione.
3. Hyaluronic acid.
4. Isotopes in medicine.
5. Sphingomyelins.

IV- Mention the differences between:

1. Vitamin D_2 and D_3.

2. Emulsoids and suspensoids.

3. Glucose and galactose.

4. Saturated and unsaturated fatty acids.

5. Dextrin and Dextran.

6. Competitive and non competitive enzyme inhibitors.

……

September 2000

All questions to be answered formulae are a must whenever possible:

I- Mention:

a) Two types of glycolipids.

b) Two types of lipoproteins.

c) Two hydrogen carriers.

d) Two essential amino acids one containing sulfur.

II- Write on:

a) Classification of Hormones.

b) Isozymes.

c) Pinocytosis.

d) Prostaglandins.

e) DNA.

III- On biochemical basis explain:

a) Chromatography.

b) Physiological buffers.

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c) Role of vitamin A in vision.

d) Immunoglobulins.

e) Rancidity.

January 2001

Answer the following questions:

I- Mention of:

1- Two cerebrosides.

2- Two simple proteins.

3- Two polysaccharides.

4- Two heterocyclic amino acids.

5- Two sugars alcohols.

II- Write the formula and importance of:

1- Glutathione.

2- Heparin.

3- Lecithin.

4 - Lactose

5- Aromatic amino acid

January 2002

Answer the following questions:

Formulae are a must whenever possible:

III- Write Formulae only of:

a- Two sugar acids.

b- Two amino sugars.

c- Two sugar alcohols.

d- Two phospholipids.

e- Two essential amino acids.

f- Two acidic amino acids.

IV- Mention:

a- Mutarotation.

b- Two differences between starch, glycogen, cellulose.

May, 2002

Answer all of the following questions

Formulae are a must whenever possible:

I- Write the formulae and importance of:

1- Glutathione.

2- Niacin and vitamin B_6.

3- Leukotrienes.

4- Chondriotin sulfate A.

5- Hemolobin .

6- Vit.D and folic acid.

7- Sphingomyelins.

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II- Write on:

1- Two lipoproteins.

2- Two types of RNA.

3- Two types of scleroproteins.

4- Two trace elements.

5- Two factors affecting enzyme activity.

III- On biochemical basis explain:

1- Free radicals.

2- Rancidity.

3- ATP.

4- Buffers.

5- Exocytosis.

IV- Mention the differences between:

1- Albumin and globulin.

2- Glycoproteins and proteoglycans.

3- Co- enzyme and prothestic group.

4- Neutral lipids and waxes.

September 2002

All questions are to be answers:

I- Mention:

1. The chemistry and functions of two vitamins essential to bone and teeth.
2. The chemistry of two hydrogen carries: A dinucleotid and a tripeptide.
3. Functions of two trace elements.
4. Rancidity.

II- Chemical formulae and functions of:

1. Hyaluonic acid.
2. Glutathione.
3. Two essential amino acid one of them containing sulfur.
4. Two essential fatty acid.
5. Immunoglobulin IgA.

III- On bivhemical bases explain:

1. Antioxidants.
2. Allosteric inhibition.
3. Denaturation of proteins.
4. Physyological buffers.

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January 2003

All the questions are to be answered:

I- Enumerate the types of phospholipids and discuss one of them.

II- Mention the chemistry of sulfur free mucopolysaccharides and discuss one of them.

III- Enumerate the types of simple proteins and discuss scleroproteins.

.....

May 2003

Answer all of following questions:
Formulae are a must whenever possible:

I- On biochemical basis explain:

1- Allostaric site.

2- Types of free redial.

3- Plasma iron.

4- IgM.

5- Pectin.

6- Buffers.

7- Iodine number.

8- Calcium absorption.

II- Write the formulae and importance of:

1- Leukotriens.

2- Biotin and vitamin B6.

3- Hemoglobin.

4- Glutathione.

5- Lecithin.

6- Sulfer amino acids.

III- Mention the differences between:

1- Linoleic and linolenic acids.

2- Glycopproteins and proteoglycans.

3- Co-enzyme and protestic group.

4- Endocytosis and exocytosis.

5- Starch, glycogen and cellulose.

September 2003

Answer the following questions:

I- What is the structural formulae of each:

1- Galactose	2- Sorbitol
3- lecithin	4- Tyrosine
5- Methionine	6- 2- dexy ribose
7- Glutamic acid	8- Sialic acid
9- Cholesterol	10- Haem

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II- Deficiency manifestations of each:-

1- Vitamin D

2- Thiamine

3- Nicotinic acid

4-Vitamin A

5- Biotin

6- Vitamin K

III- on Biochemical bases Discuss:-

1- Enzyme specificity

2- Factors affecting iron absorption from intestine

3- Free radicals

4- Bonds for protein structure

5- Rancidity

6- Exocytosis

January 2004

Answer the following questions:

V- Formulae only:

1- Tow essential amino acids.

2- Two phospholipids.

3- Two fatty acids one of them unsaturated.

4- Hyaluronic acid.

5- Two sugar alcohols.

VI- Write on:

1- Bonds in protein structures. .

2- Collagens**.**

3- Iodine value.

4- Heparin

5- Waxes.

May 2004

Formulae are a must whenever possible:
All questions to be answered:

I- Write on:

a) Deoxy sugars.

b) Isomaltose.

c) Glycogen.

d) Copper.

II- Discuss on biochemical basis:

a) Glycerol.

b) Sphingomyleine.

c) IgM.

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III- Write on:

a) Biotin.

b) Machanism of action of enzymes.

c) Active from of vitamin D.

d) NAD.

IV) Discuss:

a) Methods of protein separation.

b) Types of RNA.

c) Types of hemoglobin.

d) Imino acids and essential hydroxyl amino acid.

August 2004

==========

Formulae are a must whenever possible:

Write on the following:

1- Enumerate disaccharides and discuss one of them.

2- Enumerate essential amino acids and write down the formulae of four of them.

3- In a short write on:

a- Cerebrosides.

b- Vitamin C.

c- Antioxidants.

d- Competitive inhibition.

e- Factors affecting calcium metabolism.

f- IgE.

g- Colloidal solution.

h- Types of RNA.

January 2005

Answer the following questions:

Formulae are a must whenever possible:

1- Write the formula of:

a- Sialic acid.

b- Sorbitol.

c- Lysine amino acid.

d- Glutathione.

2- Write on:

a- Differences between glycogen and cellulose.

b- Hyaluronic acid.

c- Denaturation of proteins.

d- Zwitter ion and isoeletric point.

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June 2005

Formulae are a must whenever possible:

All question to be answered:

I- Write the formulae and importance of:

a- Glutathione

b- Sphingomyelin.

c- Heparin.

II- writ on:

a- Denaturation of proteins.

b- Point mutations.

III- Give an account on:

a- Physiological buffers.

b- Effects of free radicals.

c- Competitive inhibition of enzyme reaction.

IV- Discuss:

a- Iodine number and acid number.

b- Differences between glycogen and cellulose.

c- Deficiency manifestations e. of vitamin – D and thiamin.

August 2005

Formulae are a must whenever possible:

All question to be answered:

I- **Write the formulae and importance of:**

a- Basic amino acids.

b- Cephalins.

c- Chondroitin sulphate- C

II- write on:

a- Collagens.
b- Genetic code.

III- Give an account on:

a- Physiological buffers.
b- Antioxidants.
c- Isoenzmes.

IV- Discuss:

a- Rancidity.
b- Differeces between glycogen and cellulose.
c- Function of vitamin-B6.

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June 2006

Formulae are a must whenever possible:
All questions to be answered:

1- Write the formulae & importance of:
   a- Hyaluronic acid.
   b- Lecithin.
   c- Hemoglobin.
2- Write short notes on:
   a- Non competitive inhibition of enzyme action.
   b- Types and effects of radioisotopes.
3- Give an account on:
   a- Hydrolysis of fats and oils.
   b- Chemistry, functions and deficiency of vitamin B2.
   c- Sugar alcohols.
4- On the biochemical basis explain:
   a- Point mutations.
   b- Keratins.
   c- Antioxidants.

August 2006

Formulae are a must whenever possible:

All question to be answered:

1- Write the formulae and importance of:

a- Deoxy sugars.

b- Cerebrosides and give an example for one type.

c- Glutathione.

2- Write short notes on:

a- Allosteric enzymes.

b- Buffers.

3- Give an account on:

a- Rancidity.

b- Chemistry, function and deficiency of nicotinic acid.

c- Differences between starch and cellulose.

4- On the biochemical basis explain:

a- Characters of the genetic code.

b- Secondary structure of proteins and its stabilizing bonds.

c- Sources of free radicals.

June, 2007

Illustrate your answers with formulae whenever possible:

1-Enumerate enzyme inhibitors and discuss one of them.

2- With formulae discuss the function of vitamin B6 and active vitamin D.

3- Write on chemistry of heterocyclic amino acids.

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4- With examples explain the importance of blood PH.

5- Discuss initiation step of protein synthesis.

6- Write short accounts on Destines and Epimers.

7- Write briefly on fat values.

8- Discuss types and functions of RNA.

****

August 2007

All question to be answered. (Formulae are a must whenever possible):

On Biochemical basis explain:

1- Hyaluronic acid.

2- Sugar alcohols.

3- Basic amino acids.

4- Rancidity.

5- Vitamin C.

6- Lac-Operon.

7- Types of DNA polymerase.

8- Physiological buffers.

9- Methods of protein separation.

10- Enzyme specificity.

January 2008

Choose one correct answer:
Write the following questions:

1- Basic amino acids.

2- Protein bonds.

3- Amino sugars.

4- Saturated fatty acids.

5- Fat constants.

6- Deoxy sugars

June, 2009

All questions are to be answered. (Formulae are a must whenever possible):

1- Write short notes on:

a) Biochemical role of retinoic acid.

b) Essential fatty acids.

c) Competitive enzyme inhibitors (characters and one example).

d) Characters of the genetic code.

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2-Write down the structural formulae of:

a) Prostaglandin A_2 **b)** Cellulose **c)** Glutathione

d) Pyridoxine **e)** ATP

3- On biochemical basis explain

a) Iodine value. **b)** Mutarotation

c) Allosteric enzymes **d)** Zymogens

*4- Compare between the following***:**

a) Sugar alcohols and sugaramines (2 examples only from each).

b) mRNA and tRNA**.**

c) Protamines and histones**.**

5- Give the biochemical name for:

a) $Hba_2 s_2$

b) Pellagra preventing factor.

c) Loss of the native from and disruption of structure of protein.

6- Write briefly on:

a) Tertiary antioxidants.

b) IgG

c) Missense mutation.

d) Deficiency manifestations of Vitamin- C.

e) Hydrophobic bond.

☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺ ☺

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Histology

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May, 2000

Answer the following question:

Illustrating your answer dagram whenever possible:

1- Mention the types of nerve fibers and their sites. Then discuss the function of their sheathes and how these sheathes are formed.

2- Give an account of the structure of the myofibril. Describe the cell organelle which is responsible for the conduction of the wave of excitation to the myofibril.

3- With diagrams only illustrate.

a- Interphase nucleus (EM).

b- Erythropoeises. (L.M)

c- Fibroblast (EM).

d- Basement membrane . (EM)

……

January 2001

Choose one correct answer:

1- Stains entering the cell by phagocytosis are:
- **a-** Histochemical stains.
- **b-** Specific stain.
- **c-** General stain.
- **d-** Vital stain.

2- The cell shape depends on:
- **a-** Cell function.
- **b-** Surface tension of cytoplasm.
- **c-** Viscosity of cytoplasm.
- **d-** Microtubules and microfilaments.
- **e-** All of the above

3- Sealing (obliteration of intercellular space)is the function of:
- **a-** Nexus (gap junction).
- **b-** Desmosomes (nacula adherens).
- **c-** Intermediate junction.
- **d-** Tight junction (zonula occludens).
- **e-** a &d.

4- Cell coat (glacocalyx) characteristics include:
- **a-** Formed of pure lipid and proteins.
- **b-** Increases absorptive surface area.
- **c-** Attached to inner surface of plasma membrane.
- **d-** Responsible for blood antigenicity.
- **e-** All of the above.

5- Protein synthesis is the function of :
- **a-** Free polysomes.
- **b-** SER.
- **c-** Golgi bodies.
- **d-** Attached polysomes.
- **e-** a & d.

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6- lipofuscin pigment is:

- **a-** an exogenous pigment inside the cell.
- **b-** Rarely found in nerve cells.
- **c-** Resultin from 2ry lysosomes.
- **d-** Non membrane bound granule in the cell.
- **e-** b & d.

7- Microtubules become organized to form:

- **a-** Basal body.
- **b-** Axoneme of cilia.
- **c-** Centrioles.
- **d-** Mitotic spindle.
- **e-** All of the above.

8- The following is non membrane bound organelle:

- **a-** Lipid droplet.
- **b-** Iry lysosomes.
- **c-** Mitochondria.
- **d-** Free polysomes.
- **e-** Coated vesicles.

9- In mitochondria the elementary particles are present in:

- **a-** Outer mitochondria membrane.
- **b-** Cristae of inner membrane.
- **c-** Inner chamber.
- **d-** Outer chamber.
- **e-** All of the above.

10- Barr body:

- **a-** Represents one of the chromosomes.
- **b-** Active.
- **c-** Active chromatin (euchromatin).
- **d-** Frequently detected in male nuclei.
- **e-** Usually attached to the nuclear envelope.

11- The following is replicated during the S-phase of the cell cycle:

- **a-** Mitochondria DNA.
- **b-** Nucleolus.
- **c-** Microfilaments.
- **d-** Microtubules.
- **e-** Nuclear DNA.

12- In apoptosis cell death is due to:

- **a-** Exogenous factors as injury.
- **b-** Cell organoids are destroyed.
- **c-** Internal activities in with the cell.
- **d-** The cell swells.
- **e-** None of the above.

13- Characteristics of red blood corpuscles include:

- **a-** They are biconvex discs.
- **b-** Their average diameter is 7 Um.
- **c-** They are true cells containing nucleus and organelles.
- **d-** They are greenish in color when condensed.
- **e-** a & b.

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14- The neutrophils:

- **a-** Contain no specific granules.
- **b-** Secrete histamine and heparin.
- **c-** Contain unilobed nucleus.
- **d-** Phagoceytose macrotubules.
- **e-** Phageoeytose small particles.

15- In granulopoiesis the mother cell is:

- **a-** Myelocytes.
- **b-** Metamyelocyte.
- **c-** Myeloblast.
- **d-** Promyelocytes.
- **e-** Stab or band cell.

16- Phagocytosis of Ag-Ab complex is the function of:

- **a-** Neutrophils.
- **b-** Eosinophils.
- **c-** Basophils.
- **d-** Lymphocytes.
- **e-** All of the above.

17- The periphery of the blood platelets (Hyalomere) contain:

- **a-** Microfilaments.
- **b-** Myosin filament.
- **c-** Open canalicular system.
- **d-** Dense tubular system.
- **e-** All of the above.

18- The followings are characteristics of epithelial tissue:

- **a-** It is highly vascularized.
- **b-** Its cell is widely separated.
- **c-** It contains no nerve endings.
- **d-** It is only derived from ectoderm.
- **e-** It rests on basement membrane.

19- The apical cell membrane is pinched off during secretion in:

- **a-** Apocrine gland.
- **b-** Holocrine gland.
- **c-** Merocrine gland.
- **d-** Endocrine gland.
- **e-** Exocytosis.

20- The following are types of epithelium is highly protective function:

- **a-** Simple cuboidal epithelium.
- **b-** Simple squamous epithelium.
- **c-** Keratinized stratified squamous epithelium.
- **d-** Germinal epithelium.
- **e-** Simple columnar epithelium.

.....

January 2001

Choose one correct answer:

21- Stains entering the cell by phagocytosis are:

- **a-** Histochemical stains.
- **b-** Specific stain.
- **c-** General stain.
- **d-** Vital stain.

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22- The cell shape depends on:

- **a-** Cell function.
- **b-** Surface tension of cytoplasm.
- **c-** Viscosity of cytoplasm.
- **d-** Microtubules and microfilaments.
- **e-** All of the above

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- **d-** Tight junction (zonula occludens).
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- **a-** Formed of pure lipid and proteins.
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- **c-** Golgi bodies.
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- **b-** Rarely found in nerve cells.
- **c-** Result in from 2ry lysosomes.
- **d-** None membrane bound granule in the cell.
- **e-** b & d.

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- **c-** Centrioles.
- **d-** Mitotic spindle.
- **e-** All of the above.

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28- The following is none membrane bound organlle:

- **a-** Lipid droplet.
- **b-** Iry lysosomes.
- **c-** Mitochondria.
- **d-** Free polysomes.
- **e-** Coated vesicles.

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- **a-** Outer mitochondriae membrane.
- **b-** Cristae of inner membrane.
- **c-** Inner chamber.
- **d-** Outer chamber.
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- **b-** Active.
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- **c-** Microfilaments.
- **d-** Microtubules.
- **e-** Nuclear DNA.

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- **b-** Cell organoids.
- **c-** Internal activities with in the cell.
- **d-** The cell swell.
- **e-** None of the above.

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- **c-** They are true cells containing nucleus and organelles.
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- **e-** a & b

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34- The neutrophils:

- **a-** Contain no specific grnules.
- **b-** Secrete histamine and heparin.
- **c-** Contain unilobed nucleus.
- **d-** Phagoeytose microtubules.
- **e-** Phagocytose small particles.

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- **a-** Myelocyte.
- **b-** Metamyelocyte.
- **c-** Myeloblast.
- **d-** Promyelocyte.
- **e-** Stab or band cell.

36- Phagocytosis of Ag-Ab complex is the function of:

- **a-** Netrophils.
- **b-** Eosinophils.
- **c-** Basophils.
- **d-** Lyrnphoctes.
- **e-** All of the above.

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- **a-** Microfilaments.
- **b-** Myosin filament.
- **c-** Open canalicular system.
- **d-** Dense tubular system.
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- **b-** Its cell arc widely separated.
- **c-** It contain no nerve endings.
- **d-** It is only derived from ectoderm.
- **e-** It rests on basement membrane.

39- The apical cell membrane is pinched off during secretion in:

- **a-** Apocrine gland.
- **b-** Holocrine gland.
- **c-** Merocrine gland.
- **d-** Endocrine gland.
- **e-** Exocytosis.

40- The following are types of epithelium is highly protective function:

- **a-** Simple cuboidal epithelium.
- **b-** Simple squamous epithelium.

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c- Keratinized stratified squamous epithelium.

d- Germinal epithelium.

e- Simple columnar epithelium.

May, 2001

Answer the following questions illustrating your answers with diagrams:

1- Write notes on:

a- Origin and types of lysosomes.

b- Basement membrane structure and function.

c- Growth of cartilage.

2- Mention the light and electron microscopic structure & the function of:

a- Fibroblast.

b- Osteoblast.

c- neuronal cell body.

3- Draw only labeled diagram of:

a- Sarcomere structure during contraction and relaxation.

b- Motor end plate (neuromuscular junction) structure.

c- Erythropoiesis .

……

August 2001

Answer the following questions illustrating your answers with diagrams:

1- Structure of interphase nucleus.

2- Structure and function of granular leukocytes.

3- Types of exocrine glands.

4- Structure and function of

a- Macrophages

b- Fat cells

5- Structure and function of

a- Osteoblast

b- Osteoclast

6- Structure of skeletal muscle fibers.

7- Write account on myelination in the peripheral nervous system.

May, 2002

Answer the following questions illustrating your answers with diagrams:

1- Write an account on:

a- Lysosomes.

b- Lymphocytes.

c- Chondrocytes.

d- Plasma cells.

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2- Report on:

a- Sarcoplasmic reticulum of skeletal m.f.

b- Myelination in peripheral nervous system.

c- Pacinian corpuscle.

December, 2002

Answer the following questions illustrating your answers with diagrams:

1- Report on the structure and function of:

a- Smooth endoplasmic reticulum.

b- Neutrophils.

c- Osteoctytes.

d- Most cells.

2- Write an account on:

a- Intercalated discs of cardiac muscle fibers.

b- Neuronal cell body.

c- Oligodendrocytes.

May, 2003

Answer the following question:

Illustrate your answer with diagrams.

I- Mention the structure and function of each of the following:

a- Mitochondria.

b- Plasma cell.

c- Osteoblast.

II- Write notes for each of the following:

a- Basement membrane.

b- The structure of the sarcomere and sarcoplasmic reticulum.

c- The structure and types of the synapse.

III- Draw only a labeled diagram for each of the following:

a- Simple squamous epith (H & E).

b- Erythropoiesis (the development of red blood copuscles).

c- An interphase nucleus (E.M).

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August 2003

Answer the following questions illustrating your answers with diagrams:

1- Mention the structure and function on:

a- Rough endoplasmic reticulum.

b- Fibroblast.

c- Neutrophils.

2- Write an account of:

a- Compact bone.

b- Intercalated disc.

c- Neuronal cell body.

3- Draw

Labeled diagram illustrating the structure of the following:

a- Sarcomere.

b- Muscle spindle.

c- Interphase nulcleus.

May, 2004

Answer the following questions illustrating your answers with diagrams:

1- Describe the structure and function of :

a- Lymphocytes.

b- Fibroblasts.

c- Neuronal cell body.

2- Write an account on:

a- Mitochondria.

b- Difference between cardiac & skeletal muscles.

c- Types of neurons.

3- Draw labeled diagram for:

a- Transitional epithelium. (L.M)

b- Interphase nucleus. (E.M)

c- Osteoclasts. . (E.M)

August 2004

Answer the following questions illustrating your answers with diagrams:

1- Write notes on:

a- Origin and types of lysosomes.

b- Basement membrane structure and function.

c- Compact bone.

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2- Mention the light and Electron microscopic structure & the function of:

a- Fibroblast.

b- Osteoblast.

c- Neuronal cell body.

3- Draw only labeled diagrams of:

a- Sarcomere structure during contraction and relaxation.

b- Motor end plate (neuromuscular junction) structure.

c- Eosinophils (EM).

2005

Illustrate your answer with diagram.

I- Mention the structure and function of each of the following:

1- Golgi apparatus.

2- Basement membrane.

3- Plasma cell.

II- Write notes for each of the following:

1-Synapse (structure & types).

2- Sarcomere & Sarcoplasmic reticulum of skeletal muscle.

3- Types of blood capillaries and discuss in detail one of them.

III- Draw only a labeled diagram for each of the following:

1- An interphase nucleus (E.M).

2- Osteoclast (E.M).

3- Stages of development of red blood corpuscles (Erythropoiesis).

June 2005

1-Answer the following illustrating answer with diagrams:

a- Mention the types of intercellular junction and then discuss one of them.

b- Mention the different types of bone cells and then discuss one of them.

c- Mention the types of blood capillaries and then discuss one of them.

2- Name the following types of cells and then discuss one of them illustrating your answer with diagrams:

a- Name cells producing myelin, then discuss one of them.

b- Name cells producing collagen fiber, then discuss one of them.

c- Name cells producing histamine and heparin and then discuss one of them.

3- Draw only labled diagrams of:

a- Basement membrane.(E.M)

b- Stages of erythropoiesis (using colored pencils).

c- Sacromere during relaxation. . (E.M)

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August 2005

Answer the following questions illustrating your answers with diagrams:

1- Write an account on:

a- Origin and types of lysosomes.

b- Basement membrane structure and function.

c- White pulp of the spleen.

2- Mention the light and electron microscopic structure:

a- Fibroblast.

b- Osteoblast.

c- Neuronal cell body.

3- Draw only labeled diagram of :

a- Sarcomere structure during contraction and relaxation.

b- Motor end plate (neuromuscular junction) structure.

c- Erythropoiesis .

.....

August 2006

Answer the following questions illustrating your answers with diagrams:

1- Report on the structure and function of:

a- Smooth endoplasmic reticulum.

b- Neutrophils.

c- Osteocytes.

2- Write an account on:

a- Fibroblast.

b- Neuronal cell body.

c- Basement membrane.

3- Draw labeled diagrams only for:

a- Sarcomere structure during contraction and relaxation.

b- Motor end plate (neuromuscular junction) structure.

c- Medium sized artery and vein.

.....

January 2007

Choose one correct answer:

1- Vital stains:

a- Stain cellular components after rupture of the cells.
b- Enter the cells by active transport.
c- Through which we can study the living cells.
d- Enter the cells by diffusion or phagocytosis.
e- c and d.

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2-small particles enter the cells by the process of:

a - Pinocytosis.
b- Phagocytosis.
c- Exocytosis.
d- Active transport.
e- Passive transport.

3- The fluid mosaic nature of the cell membrane is due to:

a - variation in the staining affinity.
b- alternating protein and lipids regions.
c- The presence of phospholipids.
d- Glycocalyx.
e- None of the above.

4- The core of microvilli is formed of:

a- 9-peripheral groups of microtubules.
b- glycoproteins.
c- Groups of fine microfilaments.
d- a and b.
e- 9-peripheral groups of microtubules and 2 single microtubules in the center.

5- Electric coupling is achieved by:

a- interdigitations.
b- Intermediate junction.
c- Desemosomes.
d- Gap junction.
e- Intercellular canaliculi.

6- Zonula occludens (tight junction):

a- allow the intercellular diffusion only.
b- Produce a certain degree of rigidity to the apex of the cells.
c- a and b.
d- The adjacent cell membrane s fuses leaving no intercellular spaces.
e- Is achieved by well prominent cellular interdigitation.

7- The nucleolus is

a- bounded by a single unit membrane.
b- bounded by double unit membranes.
c- Not bound by membrane.
d- Not essential for the life of the cell.
e- Not essential for the division of the cell.

8- Which of the following events occur in the rough endoplasmic reticulum?

a- Packing hydrolytic enzymes in primary lysosmes.
b- The condensation and packing of proteins.
c- Formation of secretory proteins.
d- Formation of cellular proteins.
e- None of the above.

9- Microtubules

a- are rigid thick tubular structure about 80 nm in a diameter.
b- Their wall is formed of a fixed number of tubulin units.
c- Are present mainly in the ectoplasm.
d- Are involved in the cellular contraction.
e- all of the above.

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10- Which of the following is concerned with free ribosomes

a- Formation of secretory proteins.
b- Mineral metabolism.
c- Formed in the nucleolus.
d- Steroid formation.
e- Formation of cytoplasmic protiens needed for cellular growth.

11- In mitochondria the elementary particles are present in

a- The matrix.
b- The outer chamber. .
c- The inner chamber.
d- The cristae of the inner membrane.
e- The outer membrane.

12- Gogi bodies can be seen clearly in the cells

a- In stained sections with hematoxlyin and eosin.
b- In sections impregnated with silver.
c- In sections impregnated with osmic acid.
d- By histochemical methods.
e- b and c.

13- The nuclear envelope characteristics include

a- single unit membrane.
b- Continuous two unit membranes only.
c- Nuclear membrane and chromatin.
d- As nuclear membrane.
e- None of the above.

14- Synthesis (s) stage of the cell cycle

a- shows increase in the number of cell organoids.
b- Lasts about 10 % of the cycle.
c- Represent the period of DNA and histone duplication.
d- At the end of this stage chromosomes are formed of one filament (chromatin).
e- all of the above.

15- During apoptosis there is

a- Swelling of the cell.
b- Destruction of the cell organelles.
c- Condensation of chromatin.
d- Increase in the number of lysosomes.
e- All of the above.

16- The erythrocyte is quite flexible, a property that permit it to

a- exchange gases.
b- Carry a large amount of HB.
c- Adapt to the irregular shapes and small diameters of blood capillaries.
d- Facilitate the migration of erythrocytes to the C.T.
e- all of the above.

17- Neutrophils are considered as

a- multinucleated cells.
b- Microphages.
c- Macrophages.
d- A granular leukocytes.
e- None of the above.

18- Platelets are fragments of

a- Polymorphonuclear leukocytes.
b- Megakaryocytes.
c- Monocytes.
d- Megakaryoblasts.
e- cfu-cells.

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19- Reticulocytes

a- are present in the blood in about 4% of the total number RBCs.
b- are demonstrated by PAS reaction.
c- are immature RBCs containing remnants of RNA.
d- are immature RBCs containing small amount of HB.
e- about 3 um in diameter.

20- Blood monocytes

a- differentiate into macrophages.
b- differentiate into microphages.
c- are precursor cells of plasma cells.
d- Their diameter is 8-10um
e- are granular leukocytes.

June 2007

Answer the following questions illustrating your answers with diagrams:

1- Describe the structure and function of cilia.

2- Describe the structure and function of osteoclasts.

3- Discuss in details the histological structure of smooth muscle fibers.

4- Write an account on types of neurogial cells.

5- Report on the general structure of blood vessels.

6- Classify the glandular epithelium according to the mode of secretion.

7- Write on white pulp of the spleen.

8- Draw only labeled diagram showing the electron microscopic structure of plasma cell.

9- Draw only labeled diagram showing the electron microscopic structure of neutrophils

---

June 2008

Answer the following questions illustrating your answers with diagrams:

Describe the histological structure and function of:

1- Mast cells.

2- Neutrophils**.**

Write an account on the following:

3- Lysosomes.

4- Sarcoplasmic reticulum.

5- Types of neurons.

6- White pulp of spleen.

Draw only labled diagram for the following:

7- Epithelium lining empty urinary bladder (L.M).

8- Transverse section in compact bone. (L.M).

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May, 2009

Answer the following questions illustrating your answers with diagrams:

1- Give an account on the types and structure of synapse.

2- Describe the histological structure of white pulp of the spleen.

3- Write an account on the structure of Golgi apparatus.

4- Discuss the structure of different types of blood capillaries.

5- Describe the structure of the intercalated disc.

6- Classify the glandular epithelium according to the mode of secretion**.**

Draw labeled diagrams only showing the E/M for the following:

7- Motor end plate (neuromuscular junction).

8- Osteoclast.

9- Eosinophil.

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Physiology

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2000

Answer the following questions:

1- Give an account on:

a) A trial pressure curve and clinical significance of J.V.P.

b) Regulation of coronary blood flow.

c) Factors affecting the capillary permeability.

2- Discuss the following:

a) Heart block (types and ECG changes).

b) Types and functions of white blood cells.

3- Give an account on:

a) Pneumothorax (definition, types and effects).

b) Factors affecting diffusion of gases through the pulmonary membrane.

c) Hering-Bruer inflation and deflation reflexes.

4- Give an account on:

a) Metabolic changes occurring in the muscle during activity.

b) Vomiting (causes, mechanism and effects).

c) Function of bile salts.

5- Give an account on:

a) Functions of sacral outflow.

b) Facilitated diffusion and its mechanism.

January 2000

Answer the following questions:

1- What is Starling's law of the heart and its physiological significance?

2- Give a brief account on: P-R interval, S-T segment and Q-T interval of ECG.

3- Enumerate various types of leucocytes and functions of neutrophils.

4- What is the physiological importance of the surfactants?

5- Mention the factors contributing in the origin of the normal resting membrane potential.

March 2000

Answer the following questions:

1- At which phases of the cardiac cycle the A-V valves are open?
Discuss one of these phases.

2- Write a short account on: characters and causes of the first and second heart sounds.

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3- What are the causes of dyspnea?

4- What are the functions of the blood platelets?

5- Write a brief account on various functions of the saliva.

May 2000

Answer the following questions:

1- Discuss the following :

a) Cardiac reserve (definition and mechanisms).

b) Factors maintaining lymph flow.

2- Give an account on:

a) Ventricular escape.

b) Portal venous pressure.

c) Hemolytic jaundice.

d) Mechanical efficiency of the muscle and factors affecting it.

3- A-Discuss o $_2$ dissocistion curve of Hb.and its physiological significance.

Give an account on:

a)Causes of hypoxic hypoxia.

b) Strength-duration curve and its significance.

4- Write short notes on:

a) Classification and causes of anamias.

b) Causes and mechanism of vomiting.

c) Function of the vagus nerve.

5- Biophysics: Give an account on:

a) Secondary active transport through cell membrane.

b) Safety factors before oedema develops.

May 2001

Answer the following questions:

1- Discuss in brief the following :

a) Factors affecting the venous return.

b) Shock (definition & types).

2- Give an account on:

a) Isometric relaxation phase.

b) Rh factor.

c) Types & function of white blood cells.

3- Write short notes on:

a) Compliance of lunges.

b) Hypoxic hypoxia.

4- Give an account on:

a) Causes and characters of hemolytic jaundice.

b) Function of bile salts.

c) Cholinergic receptors.

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5- Write short notes on:

a) Facilitated diffusion and its mechanism.

b) Secondry active transport.

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12 January 2002

Answer the following questions:

Give an account on:

1- Define autorhythmicty of the cardiac muscles and mention the effect of ions on it.

2- Starling law (Definition, mechanism and significance).

3- Define atrial flutter and its mechanism.

4- Give a brief account on P-R interval and its clinical significance.

5- Pneumothorax and its types.

6- Pulmonary surfactants.

7- Enumerate phases of Gastric secretion and explain the second one.

8- Mechanism of vomiting.

9- Define saltatory conduction and its significance.

10- Mechanism of contraction in smooth muscle.

January 2002

Answer the following questions:

1- Give an account on Starling law of the heart (Definition – Mechanism – Limitation)

2- Discuss transmission at A-V node.

3- Discuss ECG changes in atrial, junctional and ventricular premature beats.

4- Give an account on metabolic and endocrime functions of the lung.

5- **a)** What are the factors shifting the O_2 dissociation curve to the right?

b) What are the duodenal factors that inhibit emptying of the stomach?

6- Write brief account on the functions of saliva.

7- What are the functions of the spleen?

8- Give an account on saltatory conduction.

June 2002

Answer the following:

1- Discuss the following:

a) Heart sounds **(**causes, characters and auscultatory areas**).**

b) Factors maintaining Normal arterial blood pressure.

2- Give an account on:

a) Mechanisms and causes of oedema.

b) Hering Breuer reflexes.

c) Causes of metabolic acidosis.

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3- Give an account on:

a) Mechanical efficiency of the muscle and factors affecting it.

b) Functions of pancreatic enzymes.

c) Factors affecting absorption in small intestine.

4- Give an account on:

a) Synthesis, removal and site of release of noradrenaline.

b) Classification and causes of anaemias.

c) Difference between heparin and dicumarol.

5- Write short notes on:

a) Biphasic action potential.

b) Forms of secondary active transport.

September 2002

Answer the following questions:

1- Discuss the following:

a) Arterial pulse pressure curve and its clinical significance.

b) Normal ECG waves and their clinical significance.

2- Give an account on:

a) Chemical regulation of coronary blood flow.

b) Factors affecting capillary pressure.

3- Write short notes on:

a) Types and causes of pneumothorax.

b) Hypoxic hypoxia (causes and effect on body).

4- Give an account on:

a) Function of bile salts.

b) Mechanism of salivary secretion.

c) Types and function of white blood cells.

5- Write short notes on:

a) Functions of the pelvic nerve.

b) Simple diffusion through lipid bilayer.

c) Mechanical efficiency of the muscle and factors affecting it.

January 2003

Answer the following questions:

1- At which phases of the cardiac cycle are the A-V valves closed?

- Discuss one of these phases.

2- Define paroxysmal tachycardia and discuss ECG changes in atrial A-V nodal and ventricular paroxysmal tachycardia.

3- Give an account on autorhythmicty and factors affecting it.

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4- Give an account on sources and functions of plasma proteins.

5- Give an account on the physiological importance of surfactant.

6- Give an account on the mechanism and effects of vomiting.

7- Discuss chronaxie-Rheobase and its significance of strength-duration curve.

January 2003

Answer the following questions:

1- At which phases of the cardiac cycle are the A-V valves closed?

- Discuss one of these phases.

2- Define paroxysmal tachycardia and discuss ECG changes in the atrial A-V nodal and ventricular paroxysmal tachycardia.

3- Give an account on autorythmicty and factors affecting it.

4- Give an account on sources and functions of plasma proteins.

5- Discuss the types and causes of Pneumothorax.

6- Give an account on the physiological importance of surfactant.

7- Give an account on the mechanism and effects of vomiting.

8- Discuss chronaxie-Rheobase and its significance of strength-duration curve.

June 2003

Answer the following question:

1- Discuss the following:

a) Two impulses in the circulatory system regulation heart rate.

b) Renin-angiotensin system for regulation of arterial blood pressure.

c) Normal waves of jugular venous pulse.

2- Give an account on:

a) Regulation of hepatic blood flow.

b) Delayed compensatory reactions in hemmorrhage.

3- Discuss the following:

a) Physiological signification of oxygen dissociation curve**.**

b) Definition, threshold and causes of cyanosis.

4- Give an account on:

a) Factors affecting absorption in the small intestine.

b) Mechanism of salivary secretion.

5- Discuss the following:

a) Types and functions of white blood cells.

b) Functions of pelvic nerve (sacral outflow).

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6- Discuss the following:

a) Chemical changes during muscle contraction.

b) Secondary active transport and its form.

c) Facilitated diffusion and its mechanism.

August 2003

Answer the following questions:

1- Discuss the following:

a) Chemical regulation of the diameter of arterioles.

b) Cardiac reserve (definition and mechanism).

2- Give an account on:

a) Mechanisms and causes of oedema.

b) Factors affecting coronary blood flow.

3- Give an account on:

a) Factors affecting diffusion of gases through the pulmonary membrane.

b) Causes of metabolic acidosis.

3- Discuss the following:

a) Functions of blood platelets.

b) Causes and characters of hemolytic jaundice.

4- Give an account on:

a) Function of blood platelets.

b) Types and function of autonomic ganglia.

5- Discuss the following:

a) O2 debt mechanism.

b) Simple diffusion through the lipid bilayer.

January 2004

Answer the following questions:

1- Give an account on chemical factors that regulate cardiac contractility.

2- Give an account on S-T segment.

3- Discuss the mechanism and ECG changes of atrial flutter.

4- Discuss the metabolic and endocrine functions of the lung.

5- Give an account on the causes of metabolic acidosis.

6- Discuss the functions of blood platelets.

7- Give an account on the functions of the vagus nerve.

8- Define saltatory conduction and give an account on its functions.

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June 2004

Answer the following questions:

1- *Discuss the following:*

   a- Afferent impulses from the circulatory system respiratory system and higher centers affecting the diameter of arterioles.

   b- Factors affecting venous return.

   c- Chemical factors affecting coronary blood flow.

2- *Give an account on:*

   a- Shock (definition and types).

   b- Prevention of blood coagulation in normal vascular system.

   c- Factors affecting capillary permeability.

3- *Give an account on:*

   a- Mechanism of action of CO2 on the respiratory center.

   b- Pneumothorax (definition, types and effects).

   c- Horner's syndrome.

4- *Give an account on:*

   a- Hormonal regulation of pancreatic secretion.

   b- Causes and mechanism of vomiting.

5- *Discuss the following:*

   a- Secondary active transport.

   b- Mechanical efficiency of the muscle and factors affecting it.-

September 2004

Answer the following questions:

Give an account on:

1- a- Normal waves and interval of ECG.

b- Humoral regulation of heart rate.

c- Ventricular escape.

2- a- Factors regulation hepatic blood flow.

b- Delayed (long term) compensatory reactions in hemorrhage.

3- a- Physiological significance of O2 dissociation curve of blood hemoglobin.

b- Definition and causes of hypoxic hypoxia.

4- a- Factors affecting rate of stomach emptying.

b- Types and causes of jaundice.

5- a- Metabolic changes during muscle contraction.

b- Simple diffusion through lipid bilayer.

c- Functions of the vagus nerve.

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January 2005

Answer the following questions:

Discuss the following:

1- a- Pacemaker potential.

b- Transmission of impulse in the A-V node.

2- a- Normal Q R S complex.

b- Causes and origin of resting membrane potential.

3- a- Functions of the spleen.

b- Types and causes of anaemia.

4- a- Hering Bruer reflexes. - Dead space (Definition and types).

June 2005

Answer the following questions:

Discuss the following:

1- a- Normal pulse pressure curve.

b- Renin angiotensin system and its role in regulation of aeterial blood pressure.

c- Definition and mechanism of cardiac reserve.

2- a- Delayed compensatory reactions in hemorrhage.

b- Neural and chemical factors affecting, coronary blood flow.

c- Synthesis life span and function of blood platelets.

3- a- Factors affecting diffusion of gases through the pulmonary membrane.

b-Definition and causes of hypoxic hypoxia.

c- Function of sympathetic nervous system on head and neek

4- a- Function of bile salts.

b-Absorption of glucose and proteins from the small intestine.

5- a- Compare between isometric and isotonic contraction.

b- Simple diffusion through the lipid bilayer.

September 2005

Answer the following questions:

Discuss the following:

I) a- Normal waves and interval of E.C.G.

b- Definition and mechanism of Mary's law.

II) a- Neural and chemical factors affecting coronary blood flow.

b- Factors affecting the capillary permeability.

III) a- Pneumothorax (definition, types and effects).

b- Hering-Breuer reflexes.

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IV) a- Functions and factors affecting emptying of the gall bladder.

b- Types of movement in the small intestine.

V) a- Function of vagus nerve.

b- Types, site of formation and function of plasma proteins.

VI) a- Metabolic (chemical changes) occurring during muscle contraction.

b- Mechanism of facilitated diffusion.

c- Mechanical efficiency of skeletal muscle and factors affecting it.

January 2006

Answer the following questions:

1	Enumerate phases of the cardiac cycle. Discuss one of the phases at which the A-V values are closed.
2	Write short notes on P-R interval and its significance.
3	Define autorhythmicity of the cardiac muscle and mention the effect of ions on it.
4	What are the functions of the spleen?
5	Write brief account on: **a)** Mechanism of nerve conduction. **b)** Facilitated diffusion and its mechanism.
6	**a)** Mention the factors shifting O_2 dissociation curve of blood HB to the right and to the left. **b)** Pneumothorax (Definition and types).

June 2006

Answer the following questions:

I- **Write short notes on:**

1- Causes, characters and site of hearing of first and second heart sounds.

2- Cardiac reserve (definition, mechanism and limitation).

3- Delayed (long term) compensatory reactions in hemorrhage.

II- **Give an account on:**

1- Nervous factors affecting on the diameter of arterioles.

2- Difference between heparin and dicumarol.

3- Types, sources and functions of plasma proteins.

III- **Discuss in brief the following:**

1- Definition, threshold and causes of cyanosis.

2- Physiological significance of O_2 dissociation curve of blood hemoglobin.

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IV- Discuss the following:

1- O_2 debt mechanism.

2- Simple diffusion through the lipid bilayer.

3- Types and functions of autonomic ganglia.

V- Write a short account on:

1- Causes and mechanism of vomiting.

2- Mechanism of absorption of carbohydrates from the small intestine.

September 2006

Answer the following questions:

1- write short notes on:

a- Normal waves and interval of ECG.

b- Normal waves of jugular venous pulse.

c- Factors affecting venous return.

2- Give an account on:

a- Shock (definition and types).

b- Factors affecting capillary permeability.

c- Function of blood platelets.

3- Discuss in brief the following :

a- Hering-Breuer reflexes.

b- Definition and causes of hypoxic hypoxia.

c- Classification and causes of anaemias.

4- Write short notes on:

a- Causes and characters of haemolytic and obstructive jaundice.

b- Nature and functions of bile salts.

5- Discuss the following:

a- Facilitated diffusion and its mechanism.

b- Mechanical efficiency of muscle and factors affecting it.

c- Horner's syndrome.

December 2006

A- Choose the correct answer:

1- Physiological dead space is equal to:

a- Anatomical – alveolar dead space.

b- Anatomical + alveolar dead space

c- Alveolar – anatomical dead space

d- Non of the above

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2- Propagation of action potential through the heart is the slowest in the:

- **a-** S-A node
- **b-** A-V node
- **c-** Atrial muscle
- **d-** Purkinje fibers

3- In ECG, the ventricule is indicated by:

- **a-** P-R interval
- **b-** T wave
- **c-** P wave
- **d-** QRS complex

B- Write yes or no:

1 - The red blood corpuscles are about 10 millions per mm3 of peripheral blood in normal adult person. ( )

2- Plasma globulins are formed in the reticulo-endothelial system. ( )

3- The concentration of intracellular K+ is higher than the concentration of extracellular K+. ( )

4- Depolarization of a nerve fiber occurs due to rapids influx of K. ( )

December 2006

A- Choose the correct answer:

1- Pulmonary surfactant is formed by:

a- Alveolar macrophages.

b- Type II alveolar cells.

c- Goblet cells.

d- Type I alveolar cells.

2- The action potential of sino-atrial node is characterized by:

a- Low resting membrane potential (-60 mv).

b- High resting permeability to Na + ions.

c- Low permeability to K + ions.

d- All of the above.

3- The normal duration of P-R interval is:

a- 0.12- 0.2 sec

b- 0.5- 0.7 sec

c- 0.08 sec

d- 0.29 sec

B- Write yes or no:

a) Apatient suffering from pernicious anemia is treated with iron injections. ( )

b) Erythropoietin is increased at high altitudes. ( )

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c) The osmolarity of intracellular fluid is higher than the osmolarity of extracellular fluid.( )

d) Potassium is the most important ion for repolarization. ( )

17 December 2006

A- Choose the correct answer:

1- Compliance of the lungs and chest wall is:

a- Decreased by surfactant.

b- Expressed as volume change per unit in pressure.

c- Increased by any condition that destroys lung tissue fiber.

2- The diastole of the heart is favored by:

a- Calcium ions.

b- Potassium ions.

c- Sodium ions.

3- Velocity of transmission in the purkinje system is:

a- 1.5 -4 meter/second.

b- 1.5 -4 meter/minute.

c- 0.3 – 0.4 meter/second.

B- Write yes or no:

1- Vitamin B12 is called the intrinsic factor. ( )

2- Erythropoietin is stimulated by cobalt salts and androgens ( )

3- Sodium is the most important ion in the production or initiation of action potential. ( )

4- Facilitated diffusion means that a substance can transport through the cell membrane without specific carrier. ( )

January 2007

Answer the following questions:

1	Compare between 1 st and 2 nd heart sounds
2	Frank-Starling law of the heart (Definition and mechanism)
3	Normal QRS complexes
4	Origin of resting membrane potential
5	Mechanism of facilitated diffusion
6	Functions of plasma proteins
7	Functions of blood platelets
8	Pulmonary surfactants
9	Dead space (Definition and types)

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June 2007

Give an account on each of the following:

1- Atrial pressure curve and clinical signification of J.V.P.

2- Rennin-angiotensin system for regulation of arterial blood pressure.

3- Neural and chemical factors affecting coronary blood flow.

4- Definition and types of circulatory shock.

5- Hormonal regulation of pancreatic secretan.

6- Types of movement in the small intestine and their nervous regulation.

7- Hering-Breuer reflexes.

8- Pneumothorax (definition, types and effects).

9- Types and function of white blood cells.

10- Comparison between heparin and dicumarol.

11- Functions of vagus nerve.

12- Comparison between isometric and isotonic skeletal muscle contraction.

13- Forms of secondary active transport.

14- Biphasic action potential.

September 2007

Write an account on:

1- Nervous factors affecting heart rate.

2- Factors affecting cerebral blood flow.

3- Reflexes arise from right atrium.

4- P wave, P-R interval and their clinical significances.

5- Paroxysmal tachycardia (definition types & ECG changes).

6- Types and function of plasma proteins.

7- Types and causes of anemia.

8- Phases of excitability of skeletal muscle and factors affecting it..

9- Synthesis, circulation and function of bile salts.

10- Intestinal phase of gastric secretion.

11- Function of pelvic nerve (parasympathetic).

12- Definition and causes of cyanosis.

13- Factors shifting O2 dissociation curve to Rt. &Lt

14- Strength duration curve & its significance

15- Facilitated diffusion

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January 2008

Answer the following questions:

1- Simple diffusion through lipid bilayer.

2- Surfactant and its physiological importance.

3- Functions of white blood cells.

4- Unipolar chest leads.

5- Isometric contraction phase.

6- Bainbridge reflex (Definition and mechanism).

September 2008

Respiration:

1- Define: Dead space.

2- Mention briefly: 4 causes of hypoxic hypoxia.

3- Write about clinical causes of respiratory acidosis.

4- Write about cyanosis (definition, threshold and causes).

5- Write about factors affecting lung compliance.

6- Discuss: bohr Effect.

Blood:

1- Define: Diapedesis.

2- Write causes of vitamin K deficiency.

3- Discuss 3 functions of lymph nodes.

4- Mention briefly mechanism of thirst.

Circulation:

1- Discuss briefly the changes occur during the 2 phases of ventricular ejection of cardiac cycle.

2- P-R interval: Definition, duration and its significance.

3- Mention briefly: sinus bradycardia.

4- Define and explain the all or non rule of cardiac contractility.

Circulation:

1- Define the cardiac reserve.

2- Discuss 4 types of shock.

3- Write role of peripheral resistance in maintaining normal arterial blood pressure.

4- Briefly discuss Mary's law& its mechanism.

Circulation:

1- Define pulmonary oedema.

2- Write on autoregulation of coronary blood flow.

3- Mention 4 factors maintaining lymph flow.

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Digestive system:

1- Mention unconditioned reflex of salivary secretion.

2- Write 4 functions of HCL.

3- Discuss the mechanism and importance of secretin hormone secretion.

4- Briefly write 3 functions of bile salts.

Autonomic nervous system:

1- Mention functions of sacral outflow (pelvic nerve).

2- Discuss functions of cardio-pulmonary division of sympathetic nerve.

Nerve and muscle:

1- Define chronaxie.

2- Mention 2 significance of strength-duration curve.

3- Mention briefly isometric contraction in skeletal muscle.

Biophysics:

1- Define symporters as a carrier type.

2- Discuss 5 factors that affect cell membrane permeability.

December 2008

A- Choose the correct answer:

1- Shifting the O_2 -HB curve to the right means:

a) The affinity of HB to combine O_2 is increased.

b) The affinity of HB to combine O_2 is decreased.

c) Tissues uptake of O_2 is decreased.

2- The rhythmicity of the heart is decreased by:

a) Sympathetic stimulation.

b) Parasympathetic stimulation

c) Moderate increase in temperatures.

3- In ECG, the Q wave is caused by:

a) Repolarization.

b) Depolarization of the interventricular septum.

c) Depolarization of the remaining part of the ventricular base.

B- Write yes or no:

1- The red blood cells are about 90 cubic microns in volume. ( )

2- Iron deficiency leads to microcytic hypochromic anaemia.. ( )

3- Calcium is the most important ion for repolarization. ( )

4- The rate of diffusion is directly related to the number of protein channels per unit area ( )

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June, 2009

1- Digestive system:

a) Mention: Role of saliva in oral hygiene……

b) Discuss briefly: The Esophageal stage of swallowing…

c) Discuss: **2** factors affecting secretion of HCL……..

d) Mention Briefly: **4** factors affecting bile secretion…….

e) Discuss: Mass movements in the large intestine…….

2- Autonomic nervous system:

a) Mention: **4** functions of vagus nerve……..

b) Discuss: Horners's syndrome…….

- Blood:

a) Give in table **6** difference between heparin and dicumarol…

b) Mention: briefly **4** function of the spleen……...

c) Mention: briefly **3** symptom of dehydration…….

4- Biophysics:

a) Define : Antiporters as a carrier type……..

b) Mention: Mention **4** factors affecting permeability of the membrane……

5- Nerve and muscle:

a) Discuss: Mechanism of contiguous conduction in the nerve

b) Discuss: Excitatory contraction coupling theory……

6- Respiration:

a) Define: Cyanoses……..

b) Mention: Causes of respiratory acidosis & alkalosis……

c) Discuss briefly: Why phosphate buffer system is very important buffer in the tubular of the kidney?

d) Mention: Physiological significance of the S- shaped curve…….

7- Circulatory system:

a) Discuss briefly: the P-R interval……

b) Mention: effect of ions on cardiac rhythmicity……

8-Circulatory system:

a) Discuss: Mechanisms of cardiac reserve……

b) Mention: Stress- relaxation mechanism……

9-Circulatory system:

a) Discuss: Septic shock…….

b) Mention: Mechanical factors affecting coronary blood flow …….

c) Mention: **3** factors influence capillary pressure……..

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