



Answer the following questions with Labeled drawing if you need

**1- Put ✓ or X in front of following sentences and correct the wrong one:- (5 marks)**

- 1- Amphibians are not sensitive to changes in temperature at all ( )
- 2- Chytridiomycosis leads to death of adults and larvae of amphibians ( )
- 3- Ammonia can be measured by hyrolab in aquaculture tanks ( )
- 4- Food supply is a determining factor for frog distribution ( )
- 5- Oxygen level can be determined in the water by PH-meter ( )

**2- Fill the spaces in the following sentences (10 marks)**

- 1- As economic importance amphibians can be used as
  - a-.....
  - b-.....
  - c-.....
  - d-.....
- 2- Methods of aquatic vertebrates breeding are
  - a-.....
  - b-.....
  - c-.....
  - d-.....
- 3- Salinity can be measured using .....in aquatic environment.
- 4- The temperature inside the aquaculture tanks can be controlled using.....
- 5- The required dietary nutrients in all amphibians life stages are
  - a-.....
  - b-.....
  - c-.....
  - d-.....
- 6- Aquaculturist can provide tanks with oxygen by .....
- 7- The amphibians malformations such as ....., ....., and .....
- 8- The life cycle of the frog is .....

**3- Answer SEVEN Only of following themes: (35 marks)**

- 1- Mention the causes of amphibian decline?
- 2- Why the fish eggs damage rate is high than the amphibians?
- 3- Discuss by drawing the aquarium components?
- 4- Discuss the function of the air injected into aquatic environments?
- 5- What are the hybrid breeding characteristics?
- 6- Discuss the source of feed ingredients?
- 7- Mention why amphibians are so susceptible to mutations?
- 8- Compare between three of the commonly waters and their characteristics?
- 9- What about the aquaculture human safety?
- 10- What are the reproduction strategies in frog?

End of questions

Best wishes.....,



فسيولوجيا التكاثر (١١ ح)

Answer the following questions:-

وضح بالرسم كلما أمكن ذلك

1- Answer 3 only of the following:- (15 marks)

- The functions of testes are to produce sperms and testosterone, draw a cross section of seminiferous tubules showing the stages of spermatogenesis and the interstitial cells.
- Draw the principal parts of the sperm and explain why it is necessary to ejaculate a huge number of sperms although one sperm is needed to fertilize the ovum.
- Semen (seminal fluid) is a mixture of sperms and the secretions of the accessory glands explain this.
- Describe the physiological effects of testosterone.

2- Answer 3 only of the following:- (15 marks)

- Describe the ovaries as glands that produce ova and female sex hormones (draw a labeled diagram of the ovarian cycle in woman)
- Describe the function of the uterine tube in transporting a fertilized ovum to the uterus by drawing diagrammatic illustration of segmentation of fertilized ovum and subsequent implantation in the uterus.
- Histologically the uterus consists of three layers of tissue and has a good blood supply, identify and draw the anatomical portions of the uterus and their functions.
- Describe the structure of the mammary gland and write about hormones related to milk production.

3- Write on 4 only of the following: (12 marks)

- Function of Corpus luteum during menstrual cycle and during pregnancy.
- Define the following: ectopic pregnancy, cryptorchidism, colostrum.
- Explain menopause.
- Differences between oestrous cycle and menstrual cycle.
- Functions of prostate gland and epididymis.
- Draw the structure of placenta and explain functions of placenta and umbilical cord.

4- Please write (✓) or (X) on the following sentences: (8 marks)

- A zygote with 46Xy chromosomes is a female ( )
- If the spermatozoa per milliliter falls below 20 million, the man is likely to be sterile ( )
- Corpus luteum secretes androgens ( )
- During pregnancy, the large amount of estrogen secreted by the placenta increase the formation of prolactin ( )
- Failure of testis of descent into the scrotum is called cryptorchidism ( )
- Menarche is the last menstrual cycle ( )





Passiut University Faculty of Science Zoology Department	Final Exam of Developmental Biology (Z437) For 4 <sup>th</sup> levels Zoology Students	Jan., 11 <sup>th</sup> 2020 Time: Two hours Total marks: 50
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Answer the following questions using labeled drawings when it is possible: (10 marks each)

- 1- A- Explain the mechanism of cell migration. (5 marks)  
B- Show the functions of two somatic cells associated with gametogenesis. (5 marks)
- 2- A- Describe three different methods used for fate maps with advantages and disadvantages of each. (5 marks)  
B- Summarize in a chart the sequence of events after gamete membrane fusion. (5 marks)
- 3- A- Write notes on types and factors controlling parthenogenesis. Explain an experiment clarifying why does not parthenogenesis occur in mammals. (6 marks)  
B- Show with labeled drawings only the development of heart and differentiation of mesomeres with reference to different types of kidneys. (4 marks)
- 4- A- Describe the role of each of the following: speract – cyclin - serine protease - glycosaminoglycan. (4 marks)  
B – What are the different types and functions of cadherin molecules? (6 marks)
- 5- A- What is the significance of each of the following: induction- morphogenesis – pattern formation – differentiation? Explain using an example for each. (4 marks)  
B- Show with labeled drawings only the development of mammalian eye. Mention the embryonic origin of each part of the eye. (6 marks)

End of questions.....Best of Luck

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Assiut University  
Faculty of Science  
Department of Zoology  
Total Marks 50



Vertebrate Taxonomy  
Course code Z433  
Time: 2 hours

Final Exam. 2019/2020

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Answer the following questions:-

1- Complete the following: (30 Mark)

- The upper jaw of *Bradyodonti* is fused to braincase and the ..... is not involved in jaw suspension.
- In ..... the gill pouches open to the exterior either separately or .....
- The gill slits are ventrally placed in .....
- In ..... the gills are covered by flap of skin.
- The pelvic fins are modified to form ..... in male of dog fish.
- The paired fins have a fleshy lobe at their base in.....
- In..... there are two separate dorsal fins.
- In *Halecomorphi*..... is present together with numerous.....
- The frontal and parietal bones are ..... in the skull of *Anura*.
- Limbs and girdles are..... and the body is worm-like in.....
- The skull has no..... in *Chelonia*.
- The quadrate bone is..... in *Crocodylian* skull.
- Skull of birds is....., i.e. with single occipital condyle.
- In Birds vertebrae have..... centra.
- Mammals are viviparous except.....
- Except in *Monotremes* and most of the *Marsupials* ..... is present which supplies nourishment to the embryo.
- Mammary glands are without..... in *Prototheria*.
- Well developed ..... is present in females of *Metatheria*.
- Class: *Chondrichthyes* is divided into subclasses..... and .....
- Class: *Osteichthyes* subdivided into subclasses....., ..... and.....



- Subclass: *Theria* includes infraclasses....., .....and.....
- Class: *Aves* includes 3 superorders....., .....and .....
- Subclass: *Prototheria* includes orders....., ..... and .....
- In *Crocodylia*,..... ribs are present in most vertebrae.
- In *Rhynchocephalia*, the cloacal aperture is..... and there is no .....
- In *Serpents* the vertebrae have accessory.....
  - In Birds, sound production is from.....
  - In *Carinatae*, the terminal caudal vertebrae are fused to form .....
- In Mammals, the quadrate and aricular bones are transformed into ..... and .....of ear apparatus.
- In Mammals, neck has..... vertebrae.
- In Mammals, the tympanic bones are fused to form the ..... which is further modified into.....
- In Mammals,..... connecting the two cerebral hemispheres.
- The external ear pinna is present in mammals except in.....and.....
- In *Eutheria*, testes are..... contained in.....
- In *lagomorpha*, two pairs of ..... present in the upper jaw, but..... are absent.
- In *Cetacea*, hairs are reduced in adults, only few..... on the snout.
- In *Proboscidea*, the incisor teeth of upper jaw are greatly elongated and form.....
- In *Sirenia*, fore limbs are modified into..... for swimming.
- Members of *Chondrostei* have .....tail.
- Epidermal glands are present keeping the surface moist for..... in *Amphibia*.
- In Mammals the opening of trachea into the buccal cavity is guarded by.....
- Primates* limbs have 5-digits protected by.....

Mention the taxonomic characters of five only of :

(20 Mark)

*a-Chimaeriformes*

*b-Urodela*

*c-Sauria*

*d-Carinatae*

*e-Prototheria*

*f-Metatheria*

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Best wishes

Prof.Dr.Usama Mahmoud