

(11)

Answer the following questions:

Q1 Choose the correct answer: (10 marks)

1. The conjunctiva of the chick eye is:

- a)- Endodermal b)- Mesodermal c)- Ectodermal d)- Both (a) and (b)

2. The thymus of chick differentiates from:

- a)- Ventral parts of third and fourth visceral pouches
b)- Dorsal parts of the third and fourth visceral pouches
c)- Dorsal parts of the first and second visceral pouches

3. Spinal nerve arises from:

- a)- Dorsal root from the dorsal horn b)- Spinal ganglions
c)- Ventral root from the ventral horn d)- Both (a) and (c)

4. Pituitary gland is formed by fusion of:

- a)- The infundibular process of the diencephalic roof with the diverticulum of the stomodeal roof
b)- The infundibular process of the diencephalic roof with the diverticulum of the stomodeal floor
c)- The infundibular process of the diencephalic floor with the diverticulum of the stomodeal roof

5. The blood cells differentiate from:

- a)- Inner cells of blood islands b)- Outer cells of blood islands
c)- Both (a) and (b)

6. The epithelial lining of the entire digestive system arises initially from:

- a)- Ectomesoderm b)- Mesenchymal cells c)- Endoderm d)- Mesentoderm

7. The urinary bladder of amniotes is derived from:

- a)- Mesoderm b)- Endoderm c)- Ectomesoderm d)- Mesentoderm

8. The ectodermal cells elongate to form a neural plate by:

- a)- Microfilaments b)- Microvilli c)- Microtubules

9. The iris is developed from extension of :

- a)- Neural retina and pigmented retina
b)- Pigmented retina and choroid
c)- Neural retina and choroid

10. The heart of amphibian forms from:

- a)- Median mass of mesenchymal cells b)- Paired aggregations of mesenchymal cells
c)- Both (a) and (b)

Q2 Describe the development of two only of the following: (20 marks)

A. Olfactory organ of chick.

B. Heart of chick.

C. Kidneys and their ducts.

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(2)

Q3: Choose the correct answer (one answer only): (6 marks)

1. Chitin is:

- | | |
|---|--|
| a)- Structural polysaccharide (plant origin) | b)- Storage polysaccharide (animal origin) |
| c)- Structural polysaccharide (animal origin) | d)- Storage polysaccharide (plant origin) |

2. Human gametes are:

- | | |
|------------------------|---------------------|
| a)- ovaries and testes | b)- zygotes |
| c)- sperms and ova | d)- fertilized eggs |

3. are the units that specify an organism's inherited characters:

- | | |
|-----------------|-----------------|
| a)- chromatids | b)- chromosomes |
| c)- centromeres | d)- genes |

4. The division stage of the cytoplasm which usually follow the nuclear division is known as:

- | | |
|-----------------|----------------|
| a)- cytokines | b)- cytokinome |
| c)- cytokinesis | d)- cytolysis |

5. In humans, fertilized ovum has:

- | | |
|--------------------|--------------------|
| a)- 23 chromosomes | b)- 76 chromosomes |
| c)- 46 chromosomes | d)- 32 chromosomes |

6. The cell cycle occurs in two phases:

- | | |
|-----------------------------------|-----------------------------|
| a)- Prophase and Anaphase | b)- mitosis and cytokinesis |
| c)- Interphase and division phase | d)- S phase and G1/G2 phase |

Q4: Fill in the following sentences: (5 marks)

1. Cell wall is present in and
2. Ribosomes are mainly produced in.....
3. Bacteria and Archaea.....
4. Peroxisome convertsto.....
5.is the second cell organelle that contains DNA and is responsible for the production of
6. Karyotype is defined as.....
7. Chiasmata is defined as.....

Q5: Discuss three only of the following items: (9 marks)

1. The three mechanisms that contribute to the genetic variation
2. Aneuploidy-related diseases.
3. The enzymes and their roles in the DNA replication.
4. Provide in table a comparison between the proteins of cytoskeleton.

Best wishes

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 Faculty of Science
 Zoology Department
 Final Exam 2014/1015

Fourth Level
 First term
 Time: two hours

Course title: Hematology

Q1- Answer by \checkmark or X for these sentences: (20 marks: one mark each).

- 1- Plasma proteins give the blood some viscosity to prevent its rapid outflow from the arteries, so, they help in keeping normal arterial blood pressure specially the diastolic. ()
- 2-Fibrinogen) gives more viscosity to blood than other plasma proteins. ()
- 3-Reserve proteins are present in the liver and tissues and can changed within 3 hours into plasma proteins. ()
- 4-Viscosity of plasma is 2 , of water equal 1, and of whole blood is 5 and the blood viscosity is due to red blood cells and blood plasma proteins. so, it decreases in anaemia. ()
- 5- Glycolysis in the erythrocytes leads to lactate production, since the mitochondria, the centres for oxidation are absent, so, they completely dependent on anaerobic glycolysis. ()
- 6-Albumin/ Globulin ratio (A/G) is important in diagnosis of diseases, specially liver disease and it is increased in the liver disease. ()
- 7-Hematocrit is increased during dehydration, polycythaemia, altitudes and exaemia as in burns. ()
- 8-During electrophoritical separation of plasma protein, fibrinogen is the fastest reaching the anode first then alpha-, beta-, gamma globulins and lastly albumin. ()
- 9-Blood volume is less in females than in males by 7% because they have less number of R.B.Cs due to menstruation. ()
- 10- Fixed protein is one of tissue proteins and it can not changed at all into plasma proteins because they not form a part of cell protoplasm. ()
- 11-During process of erythropoiesis, Hb synthesis begins in stage of colony forming unit erythropoietin. ()
- 12- Plasma proteins close the pores in the cement substance (between of the endothelial cells) of the capillary wall ensuring normal capillary permeability. ()

- 13- Po_2 in alveoli at high altitudes or in pulmonary disease is equal 80 mmHg which will give arterial blood with oxygen saturation of 97.5 %.
- 14- NaCl in plasma , is not effective in diffusion of water between cells because it is equal at both side of cell membrane.
- 15- At tissues, 90 % of CO_2 enter erythrocytes and most of this percentage transformed into sodium bicarbonate, then it is transported to plasma.
- 16- The spleen is the main organ which destroys the old R.B.Cs although it plays a role, while old R.B.Cs are fragmented and engulfed by the phagocytic cells of the reticuloendothelial system.
- 17- Hemolytic Jaundice increases blood unconjugated bilirubin, dark color of Stool and shows decreased stercobilin .
- 18- The method of measurement of blood volume depends on haematocrite value which is not variable in the different parts of the circulation.
- 19- Vitamin C did not Potentiate the effect of folic acid, but help in iron absorption and reducing ferric to ferrous form.
- 20- Plasma proteins are essential to life and when they decreased to 1-2% death occurs due to circulatory failure.

Q2- Answer six questions only (30 marks: 5 marks each).

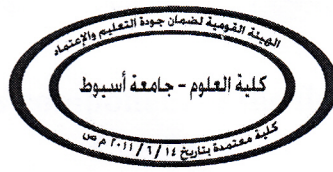
- 1- Mention each of the following (only important three points):-
- a- Functions of Plasma protein.
 - b- Factors Increasing Blood Volume.
- 2- How does blood regulates body temperature?
- 3- Compare between coagulation time and bleeding time ? (5 points).
- 4- mention four types of hemolytic anemia explaining in details only one type with its blood picture?
- 5- Compare between the two anticoagulants: heparin and dicoumarol? (5points).
- 6- What are the types and symptoms of dehydration? (6 points).
- 7- Discuss briefly three examples of the disorders of coagulation and haemostasis?
- 8- What are the causes of iron deficiency anemia and its blood picture?

With my best wishes and great success,

Professor Dr. Mohamed Bassam Al-Salahy



Assiut University
Faculty of Science
Zoology Department



Fourth year Exam (Zoology)
Course name: Comparative anatomy
Course code: (432-Z)
Time: 2 hours

Answer the four following questions

First question: Choose the single response that is the correct answer of the following. (25 marks)

1. Goblet cells are common in:

- a) Only in Amphioxus
- b) Only in Fish
- c) Amphioxus and some bony Fish sp.
- d) Fish and Amphibia

2. The epidermis produces mucous in:

- a) Fish and Amphibia
- b) Birds and Reptilia
- c) Only Fish
- d) Only Amphibia

3. Which of the following is untrue of the amphibian skin?

- a) Contains poison glands
- b) Moisture by mucous
- c) Respiration occurs across it
- d) Contains osteoderms

4. Keratinization is major challenge to face:

- a) Humid environment
- b) Terrestrial life
- c) Enemies
- d) Dry habitat

5. The Langerhans cells are stellate cells:

- a) Dispersed singly throughout the dermis
- b) Dispersed singly throughout the epidermis and may play a role in cell mediated action of the immune system
- c) b, and present in all vertebrate skin

6. The most conspicuous component of the dermis:

- a) Collagen fibers
- b) Elastic fibers
- c) Divided cells
- d) Glandular cells

7. The dermal bony scales are prominent in:

- a) Ostracoderm
- b) Osteichthyes
- c) Mammals
- d) Reptiles

8. Fibers among the aquatic vertebrates lie:

- a) Parallel
- b) At angle to each other
- c) Perpendicular

9. A true horn arises as:

- a) Bony Ossicles
- b) Epidermal Keratin
- c) Dermal bone

10. Mammalian hairs may perform:

- a) Sensation
- b) Protection from wild enemies
- c) Attracting the preys during hunting

11. Specialized functions of the skin:

- a) Form an exoskeleton
- b) Prevents the entrance of pathogens
- c) Hold the shape of organism
- d) All of the above

12. The only homology of vertebrae in lampreys:

- a) Notochord
- b) Lateral neural cartilage
- c) Myomeres
- d) Dorsal hollow nerve cord

13. Which of the following is not part of axial skeleton?

- a) Hyoid
- b) Middle ear ossicles
- c) Ribs
- d) The pelvic

14. Fate of the otic process is:

- a) Articular
- b) Quadrate
- c) Incus
- d) Stape

15. The Amphibian skull possess:

- a) Tripartite occipital condyle
- b) Pair occipital condyle
- c) Only one occipital condyle

16. The synsacrum is:

- a) An adaptive feature
- b) A phylogenetic feature

17. The occipital and sphenoid bones are part of the:

- a) Chondrocranium
- b) Splanchnocranium
- c) Dermatocranium
- d) None of the above

18. The squamosal and quadratojugal the series of the dermal bones:

- a) Facial
- b) Orbital
- c) Temporal
- d) Vault

19. Which of the following bones does not form a part of the secondary palate in alligators?

- a) Maxilla
- b) Palatine
- c) Premaxilla
- d) Frontal

20. The parietal bone in the category of bone:

- a) Replacement
- b) Dermal
- c) Endochondral
- d) Prechordal

21. The jaw joint presents in mammals is:

- a) Palatine angular
- b) Articular- angular
- c) Dentary- squamosal
- d) Quadrate- articular

22. Avian skull is derived from:

- a) Anapsidian
- b) Synapsidian
- c) Diapsidian

23. Jaw suspension in all teleostei:

- a) Ligament
- b) Hyomandibular
- c) Otic process
- d) Ascending process

24. The structures which overlap each other to provide support in tetrapod vertebrae are:

- | | |
|-----------------------|--------------------|
| a) Transverse process | b) Spinous process |
| c) Neural arches | d) Zygapophyses |

25. Developmental change in location of mesoderm that form vertebrae:

- | | |
|---------------------------------|---------------------------------|
| a) Inter-segmental to segmental | b) Segmental to inter-segmental |
| c) Visceral to somatic | d) Epiaxial to hypoaxial |

Second question: Fill in the blanks

(5 marks)

1. Ecdysis includes.....
2. Rhinoceros has a horn.
3. Giraffe horn arises as bone from, covers with
4. Sternal rib articulating with....., composed of
5. Mechanoreceptors in vertebrates; 1-.....
2-.....

Thrd question: Describe the structure and the developmental stages of one (a or b or c) from the following:

(10 marks)

- A- Mammalian teeth
- B- Chondrocranium
- C- Vertebrae

Fourth question:: Explain the structures of the following

(10 marks)

- A- Placoid scale
- B- Middle ear