Assiut University

Faculty of science

Department of zoology

September2015

Time: 3 hours

Post – granduate Examination . in zoology (Animal physiology) 603Z

Answer3 questions only of the following:-

1- a- Discuss The principal functions of the hypothalalamus

b-Explain briefly with labeled diagram the relation between hypothalamus and pituitary gland, and the other organs affected by hormones of the pituitary gland

2-a-Define anemia and explain production of red blood cells

b-Outline the main types of anemia.

c- Explain the structure of hemoglobin and discuss combination of hemoglobin with oxygen.

3-a-Insulin and glucagone are important hormones for carbohydrates regulation in blood ,discuss this, and draw a diagram of islets of langerhans in pancrease.

b-Outline the types of diabetes.

c- Disscus functions of insulin and explain disorders of pancrease.

4-a-Explain with diagram ovarian cycle events and the principal hormones during this cycle .in female

b- write about semen (seminal fluid) in man.

c-write short comment on each of following :-

cryotorchidism, virilism, feminisation, castration, Ectopic pregnancy , hypogonadism, hypergonadism.

Department of Zoology
Course: Immunology (Z618)
Year 2014-2015
Time: 3 hours Total degree: 100

قسم علم الحيوان
المقرر: علم المناعة (z618)
2015-2014
الزمن: ثلاثة ساعات الدرجة الكلية : 100

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Answer all the following questions:

Q1 Describe in details using diagram the structure of BCR and then compare using a table between the different classes of antibodies: (20 marks)

Q2 Fill in the following sentences: (20 marks)

1) MHC class I is expressed on the surface of ……, while MHC class II is expressed on the surface of……...
2) T cell receptor consists of one ……chain and one ……chain and has only one……..located among the……..
3) NK cells produce cytotoxic proteins ……..and ……onto the surface of……..
4) Based on the type of constant region of the heavy chains……..……are classified into …..…. classes which are:……..…,…….. ,…….. and ……..
5) All the immune cells except……are developed and matured in the……
6) The progenitor stem cells are classified into three types: ……..…,……and……, therefore T cells originate from the ……lineage, but DC cells originate from……
7) CD40 is expressed on the surface of ……..and binds with a receptor known as……on the surface of ……..during immunological synapses.
8) The four cell types that act as APC cells are ……..,……,……..and ……
9) Pollen, dust, mites and insect stings can act as……. causing……
10) Mature B cells are classified into three types:……..,……..and……
11) T helper cells express CD3+ and……, while T cytotoxic express……..and ……, but macrophages express……..
12) The immune cells that are important for parasitic infections are……., while …… are important for allergic reactions.

باقي الأسئلة خلف الصفحة

Q3 Write briefly on only four of the following items: (20 marks)

A. Organs of immune system.
B. Cells of immune system.
C. Type of active and passive immunity.
D. Important components of innate immunity.
E. Benefits of immunological memory.

Q4 Write in details about the three different pathways of complement system: (20 marks)

Q5 Answer only four of the following items: (20 marks)

A. Inflammation and its process.
B. Structure of TCR and T cell co-receptor molecules.
C. Mechanism of humoral immunity.
D. The balance between Th1 and Th2 response after T cell activation.
E. Antigen presentation to T cell.

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GOOD LUCK

Dr. Gamal Badr
Associate Professor of Immunology
Permanent Web site: http://www.aun.edu.eg/membercv.php?M_ID=393

Assiut university
Faculty of science
Department of zoology

September:2015
Time:3 hour

Special course

Post graduate examination in zoology (Special course)

First question: [25 marks: 12½ each]

a- Complete these sentences:

1-Erythrocyte lack mitochondria respiratory chain, so ---------- ----- is absence.

2-Glutathione cycle in erythrocytes in need continuously to ---------- ----- propagated during ----------.

3-Oxygen tension in alveoli at high alitudes or in pulmonary disease, Hb is still highly saturated with percentage of ----------

4-Absence of folic acid leads to bone marrow becomes overcrowded with megaloblastic cells waiting to ---------- to be converted to normoblast.

5-Presence of methemoglobin reductase in erythrocytes is ---------- ----------

b- What are the causes of megaloblasic anemia?

Second question: [25 marks]

1-Write on:- (in details)

a- Mechanism of Favism anemia and its symptoms .

b- Factors affecting blood volume

c- Importance of glutathione in erythrocytes

Third question: [25 marks]

- Discuss the following :-

a- How does blood regulates body temperature?

b- What are the types and symptoms of dehydration?

Forth question: [25 marks]

- Explain each of the following:-

a- What are the causes of iron deficiency anemia and its blood picture?

b- What are the functions of Plasma protein.

With my best wishes and great success,
Professor Dr. Mohamed Bassam Al-Salahy

Faculty of Science
Department of Zoology
Exam: Histology for M.Sc. students
Date: 9 / 9 / 2015

كلية العلوم - قسم علم الحيوان

امتحان : دراسات عليا
المقرر: علم الأنسجة
رقم المقرر ورمزه: 620 ح
الزمن: ثلاث ساعات
التاريخ: 9 / 9 / 2015م

I- Read the following statements and choose the most appropriate answer for each: (20 marks, each =2 marks)

1- Which cell type is involved in the synthesis and maintenance of the extracellular components of connective tissues?
a- Macrophage b- Adipocyte c- Fibrocyte d- Mast cell

2- Which cell type forms the major connective tissue component of lymphoid tissues?
a- Primary spermatocyte b - Mast cell c- Eosinophil d- Reticular cell

3- Which type of cartilage forms the intervertebral disc?
a- Hyaline cartilage b- Elastic cartilage c- Fibrocartilage
d- All of the above e- None of the above

4- Which of the following forms "myelin" in the peripheral nervous system?
a. Schwann cells b. Basket cells c. Ganglion
d. Neuroglia e. Satellite cells

5- Which layer of the epidermis is responsible for the barrier function of the epidermis?
a- Dermis b- Hairy skin c- Stratum granulosum d- Hair follicle

6- Which cell type secretes follicle stimulating hormone (FSH)?
a- Gonadotrophs b- Corticotrophs c- Mammotrophs
d- Neurosecretory cells of the hypothalamus

7- Which cell type secretes antidiuretic hormone (ADH) and oxytocin?
a- Gonadotrophs b- Somatotrophs c- Pinealocytes
d- Neurosecretory cells of the hypothalamus

8- Nervous tissue cells that play several supporting roles but do not transmit impulses are called:
a- Glial cells b- Dendrites c- Nerve cells d- Neurons

Look at the back of the page for the rest of the exam

Best wishes

9- A Malpighian corpuscle is

a- Another name for nephron

b- Combined name for glomerulus and Bowman's capsule

c- An excretory structure of insects

d- None of the above

10- What do you call the simple squamous epithelium that lines the abdominal cavity?

a- Epithelioid tissue b- Mesothelium c- Endothelium

d- Transitional e- Pseudostratified

II- Mention whether each of the following statements is true (T) or false (F) and correct the false one **(20 marks, each =2 marks)**

SN	Statement	T or F
1.	Mammotrophs and somatotrophs belong to the basophil cells of the pituitary gland	
2.	Hormones released by cells of the adrenal cortex are proteins or glycoproteins	
3.	Canaliculi are small channels between the lacunae which house chondrocytes	
4.	Chromophil cells of the pituitary release hormones which stimulate or inhibit the release of hormones by basophils and acidophils	
5.	The H-band of the sarcomere corresponds to the part in which actin and myocin filaments overlap.	
6.	The periosteum and endosteum contain osteogenic cells	
7.	In a neuron, the smooth endoplasmic reticulum is called Nissl granules	
8.	Podocytes form the parietal layer of Bowman's capsule	
9.	Cell division occurs at all layers in a stratified squamous epithelium	
10.	Transitional epithelium is a characteristic of the cells lining the trachea	

III- Answer **TWO** of the followings: provide your answer with drawings whenever possible **(30 marks, each =15 marks)**

A- Difference between spinal and sympathetic ganglion

B- The structure and function of the adrenal cortex

C- The ultrastructure and function of proximal convoluted tubules

IV- Describe with drawings, **TWO** of the followings: **(30 marks, each =15 marks)**

A- Describe the histological structure of the retina

B- The structural and functional unit of the thyroid gland

C- Structure and function of bone cells

Name of the examiner: Prof. Bothaina M. Khidr

Best wishes

Assiut University
Faculty of Science
Department of Zoology

Sept.2015
Time: Three hours

Histochemistry (604Z)
For M.Sc. students

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Answer the following questions:

I- Give an account of chemical methods for identification of lipids. (20Marks)

II- Indicate whether each of following statements is true (T) or False (F) and correct the false one : (20Marks)

1- Melanin is demonstrated by the Gmelin technique.
2-Nitric acid can be used for decalcification.
3- Orcein is widely used in elastin staining.
4- chitin is considered as the acid mucopolysaccharide.
5- Lead can be identified histochemically by Rubeanic acid technique.
6-Embedding in paraffin is not recommended for lipids.
7- Millon's reaction is used to identify for tryptophan and histidine.
8- Tritiated (^{3}H-tagged) amino acids are used for proteins synthesis in the cell.
9- The Feulgen reaction depends on hydrolysis of DNA with Hcl.
10-Keratin has a strong affinity for both basic and acidic dyes.

III- Discuss the following items: (30 Marks)

A- Glycogen in liver cells.
B-Methodology of autoradiography for the localization of the sites of DNA.
C- Simultaneous coupling with diazonium salts.

(4) Write notes on three of the following: (30 Marks)

A) Types of proteins from the histochemical point of views.
B) Periodic acid Schiff reaction for the identification of carbohydrates.
C) Special precautions for enzyme histochemistry.
D)Freezing microtome and cryostat technigue for the preparation of frozen sections.

Best wishes

Prof. Dr.Abddallah B. Mahmoud

Third question: Choose the correct answer: (30 marks)

1. Egg membranes consists of **(Sulphoric – hyaluronic –phosphoric)** acid.
2. Dorsal root ganglia of cranial and spinal nerves are derivatives of the **(forebrain - spinal cord - neural crest - hind brain).**
3. The larval stage is characteristic of **(Reptiles- Amphioxus- Mammals – Birds).**
4. In oogenesis each single primary oocyte produces **(one- two- three- or four mature ova).**
5. Meroblastic cleavage occurs in **(alecithal- mesolecithal- polylecithal- all answers are correct)** eggs.
6. Chromatophores of the skin are derived from the **(Ectoderm- mesoderm- endoderm- neural crest).**
7. The wall of the amnion consisted of **(ectomesoderm- mesoectderm-endomesoderm-mesoendoderm).**
8. Detriostomes have **(radial – circular – spiral- all answers)** cleavage.
9. Yolk surrounded the nucleus found in **(mesolecithal- oligolethical- centrolecithal- alecithal)** eggs.
10. The lining of the yolk-sac is made of **(ectoderm- mesoderm- endoderm)**.
11. The nucleoli make their appearance and new **rRNA** is synthesized during **(fertilization- cleavage-gastrulation)**.
12. Primary egg membrane is produced by **(follicular cells-ovum-oviduct- uterus).**
13. The somatopleure consisted of **(ectoderm- endoderm- both)** plus mesoderm.
14. External fertilization occurs in **(aquatic animals- terrestrial animals- both).**
15. The allantois grows from the floor of the **(foregut- midgut- hindgut).**

Fourth question: (20 marks)

Write a brief account on the following:

1. The inductive interactions during eye development.
2. The significances of apoptosis.

End of questions :: Best of luck

EkbalTadrossWassif

Assiut University
Faculty of Science
Department of Zoology

Course: Vertebrate comparative Anatomy
Time: Three hours

Post graduate exam
Sept.2015

Answer the following four questions:

QI: Choose the correct answer (20 Pt)

1- Hemichordates lack
a-Notochord b- Postanal tail
c- Notochord and postanal tail d- nerve cord

2- Tunicates are members of the chordate subphylum
a- Urochordata b-Enteropneusta
c-Cephalochordate d- Hemichordata .

3- Which of the following is isotonic to the water they live in
a- Lamprey b- marine bony fish
c-Hag fish d-Fresh water fish

4- Character similarity that results from common ancestry is called
a-Homology b- analogy
c-Plesiomorphy d- Phylogeny

QII- Discuss briefly the life and origin of chordate. (25 Pt.)

QIII- Write about the heated debate (Heresies and Heresay) (25 Pt.)

Q Iv- Describe two of the following (30Pt.)

a- Development of the central nervous system.
b- Phylogeny of the fore brain.
c- The functional divisions of the Autonomic nervous system.

الله ولي التوفيق

أ.د. ناهد صدقي