

Answer the following questions: (100 marks: 20 marks each)

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

1-Growth hormone decreases Ca^{+2} absorption by the gastrointestinal tract.()

2-prolactin hormone causes increase production of casein and lactalbumin. ()

3-The functional unit of the adrenal medulla is the chromaffin cell, which functions as a neuroendocrine cell which secrete epinephrine (adrenaline) and norepinephrine. ()

4-In the presence of insulin, GLUT4 glucose transporters are present in cytoplasmic vesicles, where they are useless for transporting glucose. ()

5-Paracrine signaling is a form of cell signaling in which the target cell is near the signal-releasing cell, altering the behavior or differentiation of those competent cells. ()

6-The majority of the circulating somatostatin appears to come from the pituitary and gastrointestinal tract and it able to inhibit the secretion of GH where GH secretion which is controlled by the interaction of somatostatin and GHRH ()

7-During stress, adrenocorticosterone causes small increases of aldosterone ()

8-Cortisol hormone promotes gluconeogenesis and increases synthesis of proinflammatory cytokines. ()

9-The pineal gland connects the endocrine system with the nervous system in that it converts nerve signals from the sympathetic system of the peripheral nervous system into hormone signals. ()

10-Primary aldosterone increase due to adrenal tumors leads to Conn's syndrome with patients having hypertension, hypokalemia, hypernatremia and alkalosis. ()

11-Juxtacrine signaling is a type of intercellular communication that is transmitted via oligosaccharide, lipid, or protein components of a cell membrane, and may affect either the emitting cell or the immediately Adjacent. ()

12-Stress diabetes is due to increased secretion or prolonged administration of glucocorticoids or corticotrophin, or Cushing's syndrome. ()

13-Progesterone is produced initially by the corpus luteum and affects the breasts by stimulating the development of the milk. ()

(5)

- 14- Often, in DiGeorge syndrome, a symptom is having a very small or absent thymus gland. As a result of having DiGeorge syndrome, patients will have very weak immune systems and are extremely prone to infections. ()
- 15- Pinealocytes secrete primarily melatonin which is synthesized from tyrosine via serotonin. ()
- 16- About 90% of persons with diabetes have insulin-dependent diabetes mellitus (NIDDM or type II). ()
- 17- Melatonin levels are lower in men with prostate cancer than in those without the disease. ()
- 18- During the uterine cycle, estrogen inhibits the proliferative phase which causes the thickening and growth of the endometrium in preparation for possible implantation of a blastocyst. ()
- 19- Causes of dwarfism are decrease of growth hormone releasing hormone GHRH (from hypothalamus), decrease of growth hormone GH (from anterior pituitary) and decrease of insulin like growth factor. ()
- 20- α -Melanocyte-stimulating Hormone Protects from Ultraviolet Radiation-induced Apoptosis and DNA Damage. ()

Q2- Write on:- (20 marks: 10 marks each).

- a- Classification of hormones according to the mechanism of action showing the difference between them.
- b- Discuss the functions and its disturbances of growth hormone.

Q3- Discuss the following :- (20 marks: 10 marks each).

- a- Metabolic Effects of T3 showing the disorders of thyroid Functions.
- b- Functions of melatonin explaining the effect of its hypersecretion.

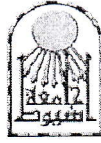
Q4- Explain each of the following:- (20 marks: 10 marks each).

- a- Cortisone functions.
- b- Causes and symptoms of both Addison's disease and Cushing's syndrome.

Q5- (20 marks: 10 marks each).

- a- Compare between the insulin dependent diabetes and insulin independent diabetes?
- b- Write on the functions and secretion of parathormone explaining the effect of its disturbances?

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



Final Exam
September 2013/2014

Answer the following questions with labeled drawing if they needed

- 1- Choose only the best correct answer (10 degree)**
- 1- The composition of serum is the same as that of plasma except.....
(Albumins - Clotting factors – Antibodies – Protein)
 - 2- Techniques which can be used to collect blood samples from fish are.....
(severing the caudal peduncle – puncturing the caudal vessel – dorsal aorta or cardiac puncture – all of them)
 - 3- In fish, granulocytes include.....
(Neutrophils - Eosinophils – Basophils – All of Them)
 - 4- The approximate generation time for Zebrafish is.....
(3 to 4 months – 5 to 6 months – 7 to 8 months – 10 to 11 months)
 - 5- Zebrafish can regenerate its photoreceptor cells and retinal neurons by the dedifferentiation and proliferation of.....
(Neuroglia cells – stem cells – bone marrow - Müller glia)
 - 6- Yolk precursors and chorionic proteins are mainly produced by.....
(kidney – liver – gall bladder – spleen)
 - 7-regulate the Sertoli cell number.
(LH – FSH – androgens - FSH in cooperation with androgens)
 - 8- In males, E_2 secreted by.....
(sertoli cells – Leydig cells - sperms – spermatogonia)
 - 9- Embryos of Zebrafish are..... (large – robust – transparent – all of them)
 - 10- Mitotic divisions of spermatogonia that lead to germ cell renewal are regulated by.....
(FSH – LH – E_2 – DHP)

2- Fill in the following sentences (10 degree)

1. Ammonia is toxic to
2. Fish reduce energy expenditure during hypoxia by.....and.....
3. Hypoxia causes and in fish cell lines.
4. TUNEL is often used to indicate
5. Water-breathing animals run a much greater risk of experiencing hypoxia than
6. The high rate of oxygen consumption that small fish have at such a high temperature which is several times that of fishes in cold temperate.
7. Saltwater fish species appear to beof nitrite than are fresh water species.
8. It is well known that inhibit nitrite toxicity in fishes.
9. The most common cause of natural fish kills is lack of in surface water.
10. FSH regulates both and into the oocytes

(5)

3- **Define FIVE only from the following:** (5 degree)

- | | |
|---------------------------------|------------------------------------|
| 1. Haematocrit. | 4. Gonadotropin-releasing hormone. |
| 2. Morpholino oligonucleotides. | 5. Endocrine disrupters. |
| 3. Luteinizing hormone. | 6. Hypoxia. |

4- **Mention ONE function for FIVE only from the following:** (5 degree)

- | | |
|--|----------------------------------|
| 1. Lymphocytes in fishes. | 4. Chromaffin tissue in fishes. |
| 2. 17α , 20β dihydroxy-4-pregnen-3-one (DHP). | 5. Thymus in fishes. |
| 3. The nictitating membrane. | 6. Follicle stimulating hormone. |

5- **Put $\checkmark$ or X in the front of the following sentences:** (10 degree)

- 1- The regular monitoring of fish blood is a very useful diagnostic tool in establishing the health status of fish farm stocks. ()
- 2- In the more advanced bony fishes, Osteichthyes, the blood is a major site of erythrocyte synthesis. ()
- 3- Monocytes are the precursors of macrophages. ()
- 4- Zebrafish's fertilized eggs almost immediately become transparent. ()
- 5- Zebrafish are carnivorous. ()
- 6- The gonadotropin receptors are composed of three domains. ()
- 7- Ammonia is thought to traverse the gill epithelium via passive diffusion. ()
- 8- Increases in the concentration of protein in the plasma can impair the ability of freshwater salmonids to perform in a critical swimming speed. ()
- 9- During the oocyte maturation the germinal vesicle migrate towards the vegetal pole. ()
- 10- The recombinant hormones enables the study of LH and FSH differential functions. ()

6- **Answer EIGHT only from the following themes:** (60 degree)

1. Reasons that make the Zebrafish suitable for scientific research.
2. Draw an overview of the endocrine chain, brain-pituitary-gonadal axis (BPG axis) in model female fish during the vitellogenic phase and during final oocyte maturation and ovulation.
3. Effects of ammonia on locomotor performance in fishes.
4. Hypoxia in fish and its effects.
5. Pituitary gland in fishes.
6. Pineal organ in fishes.
7. Effect and hormones of thyroid gland in fishes.
8. Environmental stressors as general in fishes.
9. Nitrite sources in the aquatic environment.
10. Mode of action and occurrence of Endocrine disrupters in fishes.

Best wishes.....,

(1)

امتحان مقرر خاص (٦٢٢ ح) - ماجستير علم الحيوان - كلية العلوم - جامعه اسيوط

دور سبتمبر ٢٠١٤

مدة الامتحان: ٣ ساعات

I-Write True (✓) or False (×):

1. karyorrhexis is chromatin condensation against the nuclear envelope ()
2. Bcl-2 family regulate the intrinsic pathways of apoptosis ()
3. Extrinsic apoptosis pathway is mediated by the activation of death receptors ()
4. Arc lamp produces a high intensity beam of monochromatic light. ()
5. The most common laser used in flow cytometry is argon-ion laser producing blue light at 488 nm ()
6. In apoptotic cell the prominent observed feature is the formation of autophagolysosomes ()
7. Stokes shift is the difference between the energy peak of absorbance and the energy peak of emission ()
8. B lymphocytes are able to induce apoptosis by opening pores in the target's membrane. ()
9. Linear amplification is preferable in DNA analysis ()
10. Forward scatter is a diffracted light related to cell size ()



Assiut University
Faculty of Science
Department of Zoology

Date: Sept. 2014
Time: Three hours

Final exam of ~~fresh water ecology~~ fresh water ecology (612Z) 2014
For M.Sc. students

Answer the following questions:

Q1- Choose the one alternative that best completes the statement or answers the question. (40mark two for each)

- 1) Which of the following are important biotic factors that can affect the structure and organization of biological communities?
A) nutrient availability, soil pH, light intensity
B) precipitation, wind, temperature
C) predation, competition, disease
D) A and B only
E) A, B, and C
- 2) Which of the following are correct statements about light in aquatic environments?
I. Water selectively reflects and absorbs certain wavelengths of light.
II. Photosynthetic organisms that live in deep water probably utilize red light.
III. Light intensity is an important abiotic factor in limiting the distribution of photosynthetic organisms.
A) I only B) II only C) I and III only D) II and III only E) I, II, and III
- 3) Which of the following organisms fix nitrogen in aquatic ecosystems?
A) fungi B) chemoautotrophs C) cyanobacteria D) legumes E) phytoplankton
- 4) Aquatic primary productivity is often limited by which of the following?
A) Light only B) pressure only C) light and nutrients only D) nutrient and pressure only E) light nutrients and . pressure
- 5) In your explorations as a marine biologist, you find a new species of algae floating on the surface of a coastal zone. You would most likely classify this species as
A). phytoplankton. B). zooplankton. C). benthos. D) nektone. E) decomposer.
- 6) Populations of organisms living in aquatic life zones may be limited by
A) access to light. B). nutrient availability. C). dissolved oxygen. D). All of these answers.
E). None of these answers.
- 7). The major types of flora and fauna found in aquatic ecosystems are determined primarily by
A). temperature B). salinity C). pH D). dissolved oxygen E). light
- 8). Zooplankton are
A-. primary consumers. B secondary consumers. C- tertiary consumers. D- A and B only.
E). A, B, and C

(5)

9) Lakes that have few minerals and low productivity are referred to as
A). autotrophic. B). eutrophic. C oligotrophic. D). mesotrophic. E). oligomesotrophic

10) A polymictic lake is one which:

- A) May be continually stratified except for when irregular storms results in mixing
- B) Stratify at least once each day
- C) Stratifies in summer and winter
- D) Mix incompletely

11) Which of the following zones in a lake suffers from a lack of light and therefore limited photosynthesis is able to take place?

- A) Littoral
- B) Profundal
- C) Euphotic
- D) Pelagic

12) Eutrophic lakes are characterized by:

- A) Low nutrients, low productivity
- B) High nutrients, low productivity
- C) Low nutrients, high productivity
- D) High nutrients, high productivity

13) The biological influences on organisms within an ecosystem are called

- A. biotic factors
- B. abiotic factors
- C. nonrenewable resources
- D. biomes

14) . _____ are organisms that break down and obtain energy from dead organic matter.

- A. Producers
- B. Decomposers
- C. Autotrophs
- D. Herbivores

15) The depth at which rapid change in a substance in lake occurs is called

- A) Chemocline
- B) metacline
- C) benthic zone

16) Organisms found in marine habitat include

- A) Brown algae
- B) Cephalopoda
- C) Both

17) Horizontal meanders in rivers occur in

- A) High portions
- B) flatter portion
- C) both

18) A high BOD means

- A) Less organic materials
- B) lots of organic material
- C) both

19) -----are organism which burrow beneath the mud surface such aquatic worms and some insect larvae

- A) Epibenthic organisms
- B) Infouna
- C) zooplankton

20) Which of the following levels of organization is arranged in the correct sequence from most to least inclusive?

- A) ecosystem, community, population, individual
- B) community, ecosystem, individual, population
- C) individual, population, community, ecosystem
- D) population, ecosystem, individual, community
- E) individual, community, population, ecosystem

(3)

Q2-Write the scientific term for each of the following (30 mark three for each)

1. The zone near the shores that is exposed as a beach when the tide is low
- 2- The zone which starts at the outer edge of the continental shelf and includes the deep waters
3. - The zone which extends out to the continental shelf and is the most favorable zone for hosting life because of all the nutrients and light there
- 4-. Marshy areas where freshwater and saltwater mix
- 5-. Plants and animals of microscopic size that float in surface waters and are eaten by some marine life
6. The amount of salt in water that affects the ability of an organism to live in a marine ecosystem
- 7- The zone which extends from the lake surface down to where light dims to about 1 percent of that at the surface
- 8- The chemical materials used by plants and animals that inhibit the growth of their competitors
- 9-The middle portion of the lake where the rate of temperature change with depth is the greatest
- 10 -The the zone which extends from the shore just above the influence of waves and spray to the depth where the well – mixed warm surface waters still reach the lake bed in summer.

Q3- Answer of the following (30mark six for each)

- A)What are the factors which affect (DO)dissolved oxygen in aquatic ecosystem
- B) Write an essay on **Types of water pollution**
- C)What are The reasons for phosphorous limitation in lakes
- D)What are the functions of lentic ecosystem
- E) enumerate the causes of Eutrophication and classify the water body according trophic status

Best wishes

Prof.Dr. Azhar H. Mohamad

كلية العلوم - قسم علم الحيوان

الفرقة: دبلوم الميكروبيولوجي

رقم المقرر: (٥١٠ ن)

الزمن: ثلاث ساعات بالإشتراك مع كل من أ.د/ محمود سلامة آدام

أ.د/ حسام محمد عمر

Parasitology

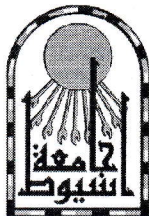
Answer the following questions:-

1- Compare between:- hyperplasia, metaplasia and neoplasia caused by parasitic infection. (12.5 degrees)

2- Write on the mechanical action of the parasites on the hosts. (12.5 degrees)

Good Luck

د/ عزيزة مروان



Assuit University
Faculty of Science
Zoology Department



Postgraduate Exam
Date: 15/09/2014
Time: 3 hours

SPECIAL COURSE (622 Z)

ANSWER THE FOLLOWING QUESTIONS:

First question: write short notes on the following items:

(20 degrees, 10 degrees/item)

- A- Protein, amino acid and lipid damage.
- B- The surface tension and density of water.

Second question: Explain the following points:

(20 degrees)

- A- Oxygen and its derivatives.
- B- Superoxide free radical anions.
- C- The chemistry, physical and role of ascorbic acid and vitamin E in human health.

(5 degrees)

(5 degrees)

(10 degrees)

Third question: Write in details on:

(20 degrees, 10 degrees/point)

- A- Phenols as antioxidants.
- B- Toxicity of glutathione (GSH) metabolism.

Fourth question: Illustrate the meaning of the followings:

(20 degrees, 4 degrees/point)

- A- Free radicals.
- B- Antioxidants.
- C- Reactive nitrogen species.
- D- Oxidative stress.
- E- Lipid peroxidation.

Fifth question:

(20 degrees, 10 degrees/point)

- A- What are the physiological effects of GSH on the kidney?
- B- Describe the co-protection of GSH with vitamins C and E in the cellular defense metabolism?

With my best wishes

Prof. Dr. Mohamed Farag El-Sayed

**Professor of Animal Physiology - Zoology Department
Faculty of Science - Sohag University**

Time allowed : 3 Hours

قسم الباثولوجيا والباثولوجيا الأكلينيكية
كلية الطب البيطري

إمتحان دراسات عليا (تمهيدى ماجستير)

طلاب كلية العلوم

مقرر خاص باثولوجيا (122م)

أ.د/ محمود عبدالظاهر عبدالسميع

**Answer the following questions support your
answer with diagram whenever possible :**

1- Describe in details the different types of disturbances of pigment metabolism & mention the pathogenesis of each type, it's occurrence and it's microscopic features ?

2- What is meant by active & passive hyperemia , what is the classification of each type, discuss briefly chronic venous congestion, it's causes, gross and microscopic features?

3- Classify inflammation according to exudate, point out the features of each type and the most important inflammatory cells in each type ?

4- Write short notes on :-

- a- Types of cell swelling.
- b- Features of chronic inflammation.
- c- Pathogenesis and types of edema.
- d- Mechanism of thrombosis.

GOOD LUCK
