

**Answer the following questions:**

**I- Choose the correct answer:**

**(25 Marks)**

**1- Atrium in Branchiostoma is formed by:**

- a- Folding of endoderm
- b- Folding of mesoderm
- c- Folding of ectoderm
- d- A pair of metapleural folds

**2- Wheel organ in Branchiostoma is a part of:**

- a- Mouth
- b- Oral hood
- c- Velum
- d- Pharynx

**3- The primary gill rod encloses:**

- a- A blood vessel only
- b- A blood vessel and coelomic canal
- c- A coelomic canal
- d- A coelomic canal and a central cavity

**4- One of the following is converted into thyroid gland of vertebrates:**

- a- Endostyle
- b- Pharyngeal gill slits
- c- Epipharyngeal groove
- d- Peripharyngeal bands

**5- Dorsal nerve root arising from the spinal cord in Branchiostoma:**

- a- Is only sensory in function.
- b- Supplies the visceral organs.
- c- Is only motor in function.
- d- Is both sensory and motor in function.

**6- In Branchiostoma gonads are arranged metamerically one pair in each segment from:**

- a- 25 to 51
- b- 29 to 51
- c- 25 to 58
- d- 29 to 58

**7- The term vertebrata is synonymous to:**

- a- Craniata
- b- Chordata
- c- Urochordata
- d- Protochordata

**8- In protostomes blastopore form:**

- a- The mouth
- b- The anus
- c- Brain
- d- Kidney

**9- Cranial nerves in cyclostomes are:**

- a- 4-6 pairs
- b- 6-8 pairs
- c- 8-10 pairs
- d- 10-12 pairs

**10- The eyes in Scoliodon are protected by:**

- a- Eyelids
- b- Immobile nictitating membrane
- c- Cuticle
- d- Movable nictitating membrane

**11- Nostrils in Scoliodon are:**

- a- Dorsal and olfactory
- b- Ventral and olfactory
- c- Dorsal and respiratory
- d- Ventral and respiratory

**12- Spine of placoid scale is made up of:**

- a- Calcite
- b- Calcium carbonate
- c- Dentine
- d- Tunicine

**13- Which is not a part of cranium of dogfish?**

- a- Occipital region
- b- Auditory region
- c- Mandibular arch
- d- Orbital region

**14- Jaw suspensorium in Scoliodon is called:**

- a- Hyostylic
- b- Craniostylic
- c- Autostylic
- c- Holostylic

**15- Which of this is not a chordate character?**

- a- A dorsal and hollow tubular nerve cord.
- b- A longitudinal supporting rod-like notochord
- c- A series of pharyngeal gill slits.
- d- Diploblastic

**16- First jawed vertebrates belong to class:**

- a- Cyclostomata
- b- Placodermi
- c- Ostracodermi
- d- Chondrichtheys

**17- Which of the following is present in all chordates?**

- a- Umbilical cord
- b- Ventral tubular nerve cord
- c- Dorsal tubular nerve cord
- d- Pseudocoelom

**18- One of the following primitive class of chordates containing Amphioxus and a few related forms, which are all marine:**

- a- Cephalochordata
- b- Urochordata
- c- Hemichordata
- d- Vertebrata

**19- Which of the following is a chordate but not a vertebrate?**

- a- Catla
- b- Hippocampus
- c- Hemidactylus
- d- Amphioxus

**20- Chordates with a backbone are called:**

- a- Invertebrates
- b- Protochordates
- c- Vertebrates
- d- Hemichordates

**21- Which of the following animals is not a vertebrate?**

- a- Fish
- b- Frog
- c- Sea horse
- d- Sea squirt

**22- Lancelets possess:**

- a- Median fins, but paired appendages are absent
- b- Paired appendages
- c- Paired appendages and operculum
- d- Paired appendages but median fins are absent.

**23- Exoskeleton in cephalochordates is:**

- a- Well developed
- b- Bony
- c- Cartilaginous
- d- Absent

**24- Notochord in cephalochordates:**

- a- Extends from pharynx to tail
- b- Extends from rostrum to pharynx
- c- Extends from rostrum to tail
- d- Completely absent

**25- In cephalochordates, gill slits open into:**

- a- Pharynx
- b- Atrium
- c- Coelom
- d- Heart

**26- Circulatory system in cephalochordates is :**

- a- Well developed closed with a heart and lack respiratory pigment
- b- Poorly developed, open with a heart and lack respiratory pigment.



- c- Well developed, open with a heart and lack respiratory pigment
- d- Well developed, closed, without a heart and lack respiratory pigment.

**27- In cephalochordates, excretion takes place by:**

- a- Protonephredia with solenocytes
- b- Mesonephredia with solenocytes
- c- Protonephredia without solenocytes
- d- Mesonephredia without solenocytes

**28- Nerve cord in cephalochordates is:**

- a- Dorsal, tubular with ganglia and brain
- b- Dorsal, tubular without ganglia and brain
- c- Ventral, tubular with ganglia and brain
- d- Ventral, tubular without ganglia and brain

**29- Lampreys belong to the group:**

- a- Agnatha
- b- Gnathostomata
- c- Pisces
- d- Tetrapoda

**30- The cartilage surrounding the buccal funnel in Petromyzon is:**

- a- Branchial basket
- b- Lingual cartilage
- c- Pericardium
- d- Annular cartilage

**31- Two tubes are given from the buccal cavity in Petromyzon:**

- a- Oesophagus and respiratory pharynx
- b- Oesophagus and Eustachian tube
- c- Eustachian tube and intestine
- d- Nasopharynx and intestine

**32- Each gill pouch in Petromyzon communicates with the respiratory pharynx by:**

- a- Gill lamellae
- b- Gill arches
- c- External gill slits
- d- Internal gill slits

**33- In Petromyzon ventral aorta gives off seven pairs of afferent branchial arteries to:**

- a- Brain
- b- Kidney
- c- Gills
- d- Liver

**34- In Petromyzon optic lobes are present in:**

- a- Forebrain
- b- Midbrain
- c- Hindbrain
- d- Medulla oblongata

**35- Chondrichthyes are mostly marine and:**

- a- Predaceous
- b- Sanguivorous
- c- Herbivorous
- d- Parasitic

**36- Tail in Chondrichthyes is :**

- a- Hypocercal
- b- Homocercal
- c- Heterocercal
- d- Hypercercal

**37- In Chondrichtheys:**

- a- Both renal and hepatic portal system are present
- b- Only renal portal system present
- c- Only hepatic portal system present
- d- Portal systems absent altogether

**38- The circuli of the cycloid scales are used to determine the:**

- a- Nutrition value of fish
- b- Sex of fish

c- Viability of fish

d- Age of fish

**39- The air bladder in bony fishes is connected to the Oesophagus by:**

a- Oesophageal duct

b- Pharyngeal duct

c- Pneumatic duct

d- Glandular duct

**40- Tail in bony fishes is usually:**

a- Homocercal

b- Heterocercal

c- Hypocercal

d- Hypercercal

**41- Aortic arches in Osteichthyes are:**

a- 2 pairs

b- 3 pairs

c- 4 pairs

d- 5 pairs

**42- Internal ears of bony fishes possess:**

a- 3 semicircular canals

b- 2 semicircular canals

c- 1 semicircular canal

d- 0 semicircular canal

**43- Rectal glands are present in:**

a- Both Chondrichthyes and Osteichthyes

b- Only Chondrichthyes

c- Only Osteichthyes

d- Neither Chondrichthyes nor Osteichthyes

**44- Liver in chondrichthyes is:**

a- 1 lobed

b- 2 lobed

c- 3 Lobed

d- 4 Lobed

**45- Members of order Dipnoi are commonly known as:**

a- Pipe fishes

b- Cow fishes

c- Cat fishes

d- Lung fishes

**46- The centrum in vertebrae in teleost fishes is:**

a- Procoelous

b- Amphicoelous

c- Acoelous

d- Absent

**47- Swim bladder is absent in:**

a- Teleosts

b- Acanthodians

c- Placoderms

d- Elasmobranchs

**48- Extinct amphibians are placed in the subclass:**

a- Stegocephalia

b- Lissamphibia

c- Lepospondyli

d- Cyptobranchoidea

**49- In lampreys paired appendages are:**

a- 2 pairs

b- 3 pairs

c- absent

d- 4 pairs

**50- Cloaca in bony fish is:**

a- Single

b- Lacking

c- One pair

d- Two pairs

**II- Draw well labeled diagrams of:**

**(25 Marks)**

a- Skeleton of pentadactyl fore limb.

b- Brain of Petromyzon.

c- Venous system in Scoliodon.

d- Arterial system in Amphibia.

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Best wishes

Prof. Dr. Usama M. Mahmoud





## Part I: External Morphology (25 degrees)

### I- Give your knowledge about 5 of the following (Use drawings when possible): (10 degrees)

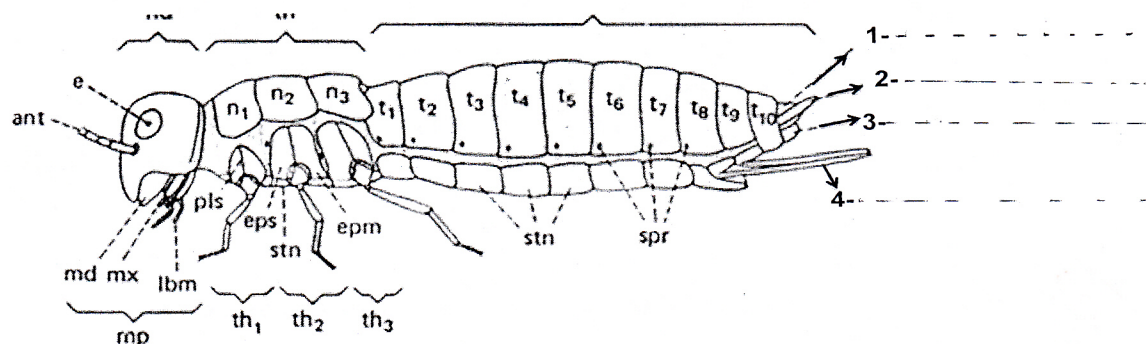
- 1- Why insects are so abundant?
- 2- The steps of insect's molting
- 3- Insect's leg articulation
- 4- Primary segmentation in body wall.
- 5- What is tentorium?
- 6- The modification in the mouth part of the butterfly
- 7- The sutures of the insect's cranium.

### II- Give the scientific name for 7 only of the following: (7 degrees)

- 1- The process in which the old skeleton is separated from the underlying epidermal cell.
- 2- Is a ventral invagination of the conjunctiva membrane between the 9<sup>th</sup> and 10<sup>th</sup> abdominal segment.
- 3- The endoskeletal attachment of the cranium.
- 4- The top of the cranium between and behind the compound eyes.
- 5- The internal cuticular process of the body wall which gives attachment to the internal organs.
- 6- The process in which the segmental areas of the body are hardened.
- 7- The box in which the sign of segmentation cannot be traced.
- 8- The layer of the body wall which prevents the loss of water from tissues.

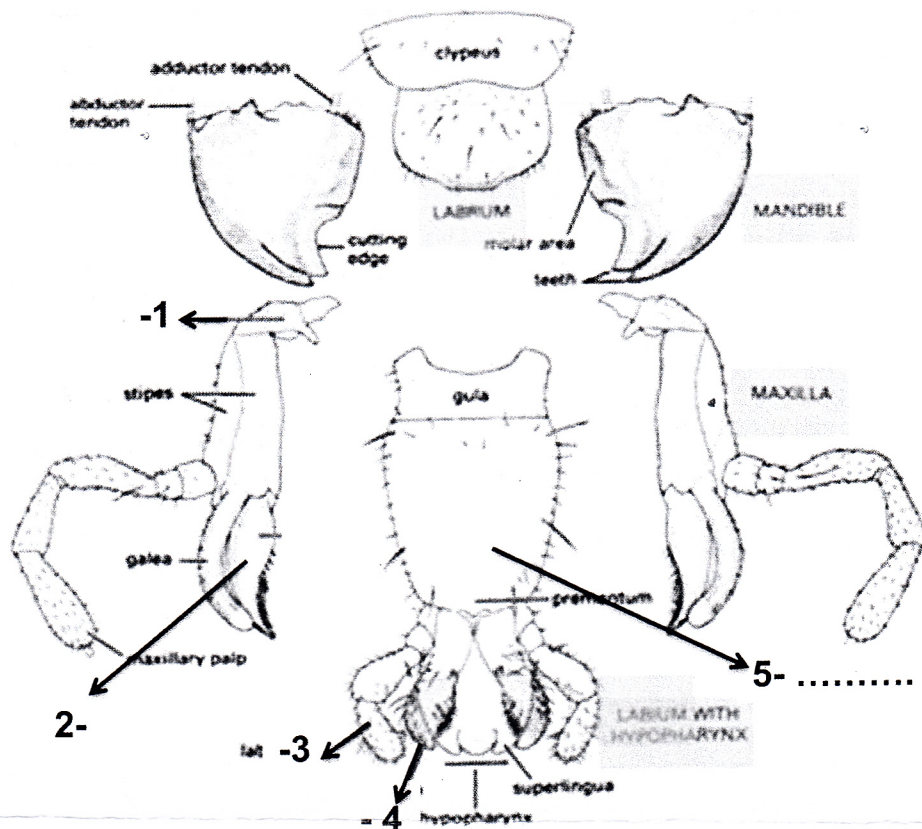
### III- Write down the missing labels on the following drawings: (8 degrees)

A-



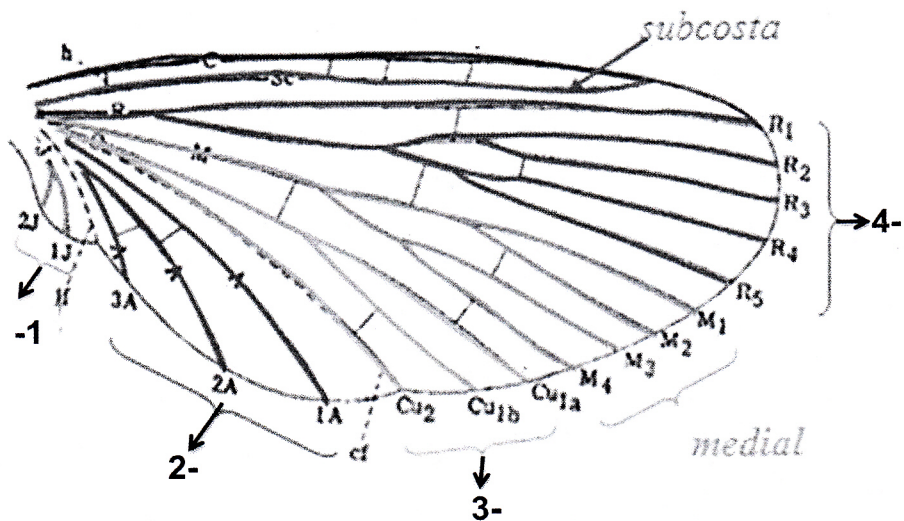
B-

(2)



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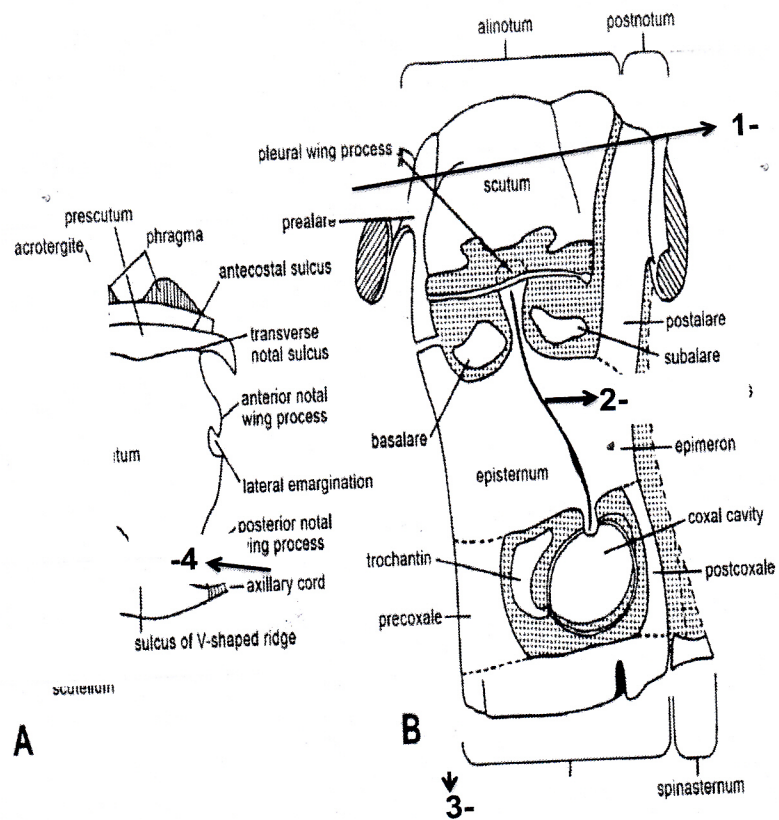
C-



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D-



Best wishes & Good Luck  
Examiner  
Prof Dr. Azza M. A. Awad

Assiut University



Final Term Exam. (210Z)

Faculty of Science

Time -2 Hours

Zoology. Department

( Marks-50)

Question (1) Choose the correct answers (Choose only one) :-

( 26 Marks )

- 1-Plays role in glycogenolysis( (A) SER (B) lysosome (C) Golgi).
- 2-Sarcoplasmic reticulum in muscle fibers acts as a trap for( (A) Ca (B) Na (C)k ) ions.
- 3-Addition of sulphates was completed to secretory products in( (A) Mitochondria (B)Golgi (C) Lysosomes).
- 4-Heame formation was manufactured by (( A)Mitochondria (B)Golgi (C)Lysosomes ).
- 5-Golgi apparatus & lysosome are main structure of( (A)I-band of sarcomere (B) acrosomal cap of sperm head (C)nucleus).
- 6- Prokaryotes genetic material termed as( (A)Nucleoid (B>true nucleus (C)both).
- 7-Dark phase nucleus depend on ((A) small (B) large (C) no ) amounts of nuclear sap.
- 8-Cell shape depends on viscosity of( (A) cytoplasm (B) nucleus (C) both)).
- 9-Region of strong attachment between cells is known as ((A) tight (B) desmosome (C)gap)junction.
- 10-RER in pancreatic acini is known as( (A) Ergatoplasm (B) Nissle granules (C) both).
- 11-Phospholipid molecules are ( (A) Bi (B) mono (C) one ) layer .
- 12-Fertilization in human occurs between ((A)egg+ sperm (B)sperm +zygote (C)egg+nucleus).
- 13- Spindle fiber consists of ((A)actin (B) tubulin (C) lamin )proteins.
- 14-Hemidesmosome makes strong attachment between ((A)cells (B)cell & basement membrane ).
- 15-Hetrochromatin consists of ( (A)4 (B)3 (C) 2 ) types in female nucleus.
- 16-Play role in reabsorption of required substances in convoluted tubules( (A)basal in folding (B) microvillus (C) both).
- 17-Beat in one direction to remove material or cells((A)microvilli (B)cilia (C)basal infolding).
- 18- Cholesterol molecules were distributed in ((A) outer (B) inner (C) both) lipid bilayer.
- 19-Cell membrane thickness is about ((A)7.5-10 (B)10-12 (C)7-15) nm.
- 20-Diameter of microtubule is ((A 25 (B)7 (C) 12)nm.
- 21-Allows movements of substances between cells ((A) tight (B)gap (C) desmosome ) junction.



(2)

- 22- Needs carrier with concentration gradient ((A) active (B) facilitated (C) bulk) transport.
- 23- Functional state of the cell depends on the number of ((A) lysosome (B) mitochondria (C) SER ).
- 24- Dynein arms are present in ((A) shaft of cilia (B) centriole (C) spindle fiber).
- 25- In telophase, nucleolar organizer determined the position of ((A) nucleus (B) nucleolus (C) golgi) .
- 26- Cytokinesis depends on the activity of ((A) microtubules (B) microfilaments (C) intermediate ).

**Question 2-Correct the following arrangements:-**

**( 8 Marks )**

- 1- Inter phase period consists of ((A) G2 (B) S (C) G1).
- 2- Mitotic division consists of ((A) telophase (B) anaphase (C) metaphase (D) prophase).
- 3- Cell cycle consists of the followings phases ((A) M (B) G2 (C) G1 (D) S (E) C ).
- 4- Spindle fiber, cilia and basal body consists of ((A) 20 (B) 27 (C) One) microtubule.

**Question 3-Write short notes with draw (Choose only one):-**

**( 6 Marks )**

- 1- Functions of microfilaments.                      2- Anaphase .                      3- polarity of cell membrane

**Question 4- Provides the definition using drawing of Two of the followings:-**      **(5Marks )**

- 1- Autosome.      2- Autocrine secretion.      3- Axo-somatic synapses.

**Question 5-put true (T) or false(F) for the followings:-**

**(5Marks )**

- 1- Tetrad chromosomes contain two homologous chromosomes.
- 2- Somatic cells contain tetrad chromosomes.
- 3- Diad chromosomes contain two sister chromatids.
- 4- Haploid chromosomes are present in gamete cells.
- 5- X- chromosome determined boy or girl in human.
- 6- There are somatic cells in the gonads.
- 7- Division of cytoplasm is known as karyokinesis.
- 8- Cell coat play role in cell membrane protection.
- 9- Phospholipids are responsible for rigidity of cell membrane.
- 10- Local proteins are synthesized by single ribosome.

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Good luck

Dr. Hanem saad Abdel-Tawab



Answer the following questions with Labeled drawing if they needed

**1- Choose only the best correct answer (10 degree)**

- 1- The predominant excretory product of fish is ammonia  
(True- False)
- 2- Polyculture of *Clarias gariepinus* and Tilapias is famous in China  
(True- False)
- 3- Oxygen content is one of quality data.  
(True- False)
- 4- Costiaasis and Chilodonelliasis are fish diseases caused by worms.  
(True- False)
- 5- Quality and density of plankton are chemical properties of water quality.  
(True- False)
- 6- In the brackishwater ponds the competition with agriculture is relatively less than static freshwater ponds.  
(True- False)
- 7- In running water culture, water is filtered continuously and recirculated.  
(True- False)
- 8- Oil cakes and kitchen waste are fish feeds of animal origin.  
(True- False)
- 9- Artificial feeding is important in intensive aquaculture.  
(True- False)
- 10- Cotton cap is a viral fish disease.  
(True- False)

**2- Fill in the following sentences (15 degree)**

- 1- The most important climatological factors for fish farming are  
.....,  
and.....
- 2- ..... and ..... are the micro-biological proportions of water quality.
- 3- From the desirable characteristics of aquaculture organisms  
are.....,  
....., and.....
- 4- ..... and..... are the criteria for selection of species for culture.
- 5- The favorable characters for selection of strains of cultivated species are  
.....,  
, and.....
- 6- ..... and ..... are criteria for choice of fish feeds.



- 7- Two methods of feeding in fish farms those are ..... and.....
- 8- ....., and.....are common employed chemicals for fish diseases treatment.
- 9- ....., and.....are different types of hatching installations.
- 10- Geotechnical data for fish culture are .....and .....
- 11- ....., and ..... are biological features of commonly cultured fishes.
- 12- ....., and .....are criteria for selection of chemicals disease control.
- 13- Factors which contributed of the upsurge for aquaculture are .....and.....
- 14- From the factors have contributed to rapid development of aquaculture are....., and.....
- 15- The limitations of cage culture are ..... and.....

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

Static freshwater ponds – Mariculture - Culture in rice fields – Polyculture – Aquaculture - Monoculture.

4- Answer FIVE only from the following themes: (15 degree)

- 1- Mention the factors unfavorable to the aquaculture development?
- 2- State the theories that explain the aquaculture history and explain one of them?
- 3- Diagrammatically shows the different fish rearing systems using reconditioned water?
- 4- Mention the considerations in site selection?
- 5- What are the different kinds of aquaculture?
- 6- Mention the most important economic and social factors in fish aquaculture?
- 7- Classify the diseases in cultivated fish and explain one of them?

5- Give a short note on TWO only of the following:- (5 degree)

1. Factors have contributed to rapid development of aquaculture.
2. Considerations in site selection for fish farming.
3. Effects of diseases in cultivated fish.

With my best wishes.....,



(1)

Assiut University  
Faculty of Science  
Zoology Department  
Final Exam 2014/1015

Second Level  
First term  
Time: two hours

Course title: Physiology1

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

- 1-Wax of honey bees is esters of fatty acids with long-chain alcohols (Mercil ) combined with Pulmitic acid and this wax is digestible in human and animals. ( )
- 2- Secretin hormone secreted from stomach , stimulates gastric juice secretion. ( )
- 3- Free radicals combine with some important molecules in the cells causing destructive effect on the cells. Vitamin C and E act as free radical scavenger leading to earlier aging. ( )
- 4-Excess intake of vitamin D leads to the deposition of calcium salts in soft tissues such as kidney and ureter. ( )
- 5-Vitamin K is essential for synthesis and activation of blood clotting factors, and its deficiency leads to prolonged clotting time. ( )
- 6- Sodium ions are necessary for acid-base balance in the body. ( )
- 7- Fluorine deficiency leads to enlarged thyroid gland due to lack of thyroxin hormone leading to severe fatigue and lethargy. ( )
- 8-Vitamines are oxilized and participate in the energy production as carbohydrates, fats and proteins. ( )
- 9-Vitamin A participates in epithelial glycoprotein synthesis and this maintains the mucosa of urogenital tract, respiratory tract, gastrointestinal tract, the cornea and the skin. ( )
- 10-Drugs such as atropine decreased heart rate, muscarine reduce heart beat (bradycardia), nicotine initially causes a decrease in pulse rate and then followed by an increase. ( )
- 11-Hemolytic Jaundice shows increased blood unconjugated bilirubin and shows pale color of stool with increased stercobilin.( )
- 12-Vitamin A deficiency leads to reduction in visual purple and xerophthalmia. ( )
- 13-Deamination means that NH<sub>2</sub> group is transferred from one amino acid to keto acid forming a new type of non-essential amino acids. ( )
- 14-Function of Vitamin B1 is to increase the activity of acetylcholine at nerve endings by inhibiting acetylcholine esterase enzyme. ( )
- 15-Vitamin B6 deficiency leads to accumulation of pyruvic acid in blood due decreased activity of oxidative decarboxylation, and increase of lactic acid in blood. ( )



- 16- The cortex of the kidney contains all the renal corpuscles, proximal and distal convoluted tubules. ( )
- Bile juice secreted one litre per day from the gall bladder and has no digestive enzymes. ( )
- 18- Deficiency of vit B2 riboflavin leads to inflammation of angles of mouth and glossitis and dermatitis. ( )
- 19- Pellagra disease is resulted from vitamin B7 deficiency which is characterized by dermatitis when skin exposed to sun light and becomes dry, rough and scaly in the hand, arm, foot, face and neck. ( )
- 20- Thyroxine hormone secretion increases urine volume by decreasing the water reabsorption from the proximal tubule. ( )

**Q2- Answer five questions only: (30 marks: 6 marks each)**

- 1- Explain the steps of Cardiac cycle with drawing ?
- 2- Write on the steps of urine formation with drawing nephron unit of the kidney and its illustrations.
- 3- Mention the pancreatic juice enzymes and their role in digestion?
- 4- Discuss the biological function of nutritional lipids. (6 items)
- 5- Compare between the following according to functions and deficiencies: Calcium, Copper and Vitamin E.
- 6- Draw and discuss the oxygen dissociation curve (four comments).
- 7- Discuss the blood and lymph pathways of intestinal absorption?

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With great success

Prof. Dr. Mohamed Bassam Al-Salahy



( 1 )



Faculty of Science

Assiut University

Department of Zoology

Exam of Animal Ecology Code No. 225 Z

2014-2015

Answer the following questions:

1- Write the suitable number from column A in B: (15 marks)

|                        |                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------|
| 1-The community        | A relationship in which both organisms benefit from each other..... (      ).                        |
| 2-The ecosystem        | Are the plants ..... (      ).                                                                       |
| 3- The limiting factor | Is killing and eating an individual of the same species..... (      );                               |
| 4- Range of tolerance  | Are those which become active during day time (      ).                                              |
| 5- Homeostasis         | Are those which become active during night (      )                                                  |
| 6-Monogamy             | The degree to which individuals of the same species tolerate one another (      ).                   |
| 7-Polyandry            | The number of births in a given time period. (      ).                                               |
| 8-Birth rate           | Depend on internal heat production..... (      ).                                                    |
| 9- Homeotherms         | The formation of a pair bond between one male and one female..... (      ).                          |
| 10- Mutualism          | The individual female gains two or more males ..... (      ).                                        |
| 11-Producers           | The range of the environmental conditions within which the organism can tolerate..... (      ).      |
| 12-Cannibalism         | The maintenance of conditions within the range that the organism can tolerate. .... (      ).        |
| 13-Diurnal animals     | The factor which determines the types of organisms which may exist in that environment..... (      ) |
| 14-Nocturnal animals   | Is the structural and functional unit studied in Ecology..... (      )                               |
| 15- Social behavior    | An assemblage of populations in a given area..... (      )                                           |

اقلب الصفحة من فضلك



**2- Write the scientific term of the following: (5 marks)**

- 1- The highest population that can be maintained for an indefinite period of time by a particular environment.
- 2- A group of animals controlling body temperature by external means.
- 3- A relationship in which one organism benefits and the other is harmed.
- 4- All the members of the community plus the physical environment in which they live in.
- 5- A biome with heavy rainfall and constant warmth.
- 6- A biome with sparse rainfall and extreme daily temperature fluctuations.
- 7- The struggle between different species for the same limited resources.
- 8- The role the species plays.
- 9- A stage of succession in which the populations of plants and animals exist in balance with each other and the environment.
- 10- A gas needed by all living things because it is part of the structure of amino acids.

**3- Give one reason for each of the following: (15 marks)**

- 1- Thermal Pollution.
- 2- Destruction of the ecosystem.
- 3- Considering Egypt within desert biome.
- 4-Considering Camels as highly adapted toward water loss.
- 5-Flight insects have a hard cover.
- 6-About 30% of solar radiation reflects again into sphere.
- 7- Temperature has a bifold effect on organisms.
- 8- Life can exist without sun in the deep water.
- 9-Most micro-arthropods do vertical migration.
- 10-Decomposers are essential for any ecosystem.

**4-Choose the correct answer from the following (5 marks):**

- 1-The visible light includes (Ultra violet light-Infra red-the well known 7 colors).
- 2-The dominant species is that (possesses the highest biomass- occupies the most space - makes the largest contribution to energy flow - all).
- 3-Light affects (the behavior of animals- morphology-both).
- 4-Eutherms are (widely distributed-restricted in their distribution- both).
- 5- The temperature affects (the physiology of animals- morphology- both).
- 6- The maximum rate at which a population can increase under ideal conditions is known as (birth rate - biotic potential- death rate).
- 7-A few numbers of young is characteristic of (short lived animals – long lived animals – both).

(3)

- 8- The organisms that eat other organisms are known as (**decomposers- Producers - consumers**).
- 9- The negative impact of man includes (overhunting- species preservation- biological control-all).
- 10- The ecosystem includes (the biotic factors- the abiotic factors- both).

**5- Answer the following: (10 marks):**

- 1- Apply your knowledge on how we can conserve (نحمي) life on the earth.
- 2- Analyze the requirements for a stable ecosystem.
- 3- On the light of your study: write three recommendations (توصيات) to prevent thermal pollution.

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**Good Luck**