



الامتحان في ٦ صفحات

**Answer the following questions: (50 marks)**

**I- Write the scientific term of the following statements:**

**(10 marks)**

1. A community plus the nonliving factors with which it interacts. (.....)
2. Moving of members of a population out of a given area. (.....)
3. An interaction between species that enhances the fitness of the exploiting individuals while reducing the fitness of the exploited individual. (.....)
4. The study of changes in the size and composition of populations, and the factors influencing these changes. (.....)
5. One animal attached to another exclusively for transport. (.....)
6. Individuals of different species compete for the same resource. (.....)
7. A relationship between *Rhizobium* and plants in the family *Fabaceae*. (.....)
8. The total number of organisms in the population. (.....)
9. All environmental factors which limit the growth of populations (.....)
10. The number of organisms of different ages. (.....)

**II- Choose the correct answer and also write its letter in the answers table below:**

**(20 marks)**

**1- The statistical study of populations is called**

- |               |               |
|---------------|---------------|
| A) density    | B) dispersion |
| C) demography | D) fecundity  |

**2- Which distribution pattern does territoriality produce?**

- |            |                      |
|------------|----------------------|
| A) Random  | B) Uniform           |
| C) Clumped | D) None of the above |

- A) scramble competition  
B) contest competition  
C) intraference competition  
D) Both A and B

4-..... is an obligate mutualism between a fungus and a green alga.

- A) Lichen  
B) Cynobacterium  
C) Coral Reef  
D) Both A and B

**5- One of the following is not related to the others.**

- A) Phoresy  
B) Metabiosis  
C) Inquilinism  
D) Mutualism

6- Which one of the following is NOT a density-dependent factor.

- A) Competition  
B) Predation  
C) Parasitism  
D) None of the above

7-All the parasites of one species in a single individual host is called

- A) Infrapopulation  
B) Metapopulation  
C) Postpopulation  
D) None of the above

8-..... is a relationship between two organisms where one is harmed while the other is unaffected.

- A) Commensalism  
B) Mutualism  
C) Amensalism  
D) Parasitism

Q- The mortality rate of organisms following a type III survivorship curve is

- A) constant throughout life  
B) higher in post-reproductive years  
C) lower after the organisms become established  
D) unrelated to age

10- What type of survivorship curve do humans have?

- A) Type I                      B) Type II  
C) Type III                  D) Type IV

1- ..... competition occurs when a resource is inadequate for the needs of all individuals.

- A) Intraspecific                      B) Exploitative  
C) Apparent                          D) Scramble

2- The number of individuals per unit area determines the population's

- A) survivorship      B) density  
C) mortality      D) age distribution



13- .....is a biological interaction between two or more organisms that is **detrimental** to at least one of them.

- A) Antibiosis** **B) Mutualism**  
**C) Commensalism** **D) None of the above**

**14- Which of the following factors will affect population growth rates?**

- A) net emigration** **B) net immigration**  
**C) birth rate** **D) all of the above**

**15- One of the following is Not related to the others**

- A) Predators**
- B) Prey**
- C) Pathogens**
- D) Parasites**

**16- What type of population associated with age pyramid which has an extremely broad base?**

- A) a rapidly expanding population**      **B) a stable population**  
**C) a population where the birth rate = the death rate**      **D) a population with more males than females**

**17- Choose the factor that limits population growth.**

- A) predation  
B) harsh weather  
C) disease  
D) All are factors that could limit population growth

18- One of the following is Not a result of Intraspecific competition.

- A) Stress**
- B) Dispersal**
- C) Constant loss**
- D) Social interactions**

**19- All factors which limit the growth of populations**

- A) environmental resistance**
- B) Biotic Potential**
- C) population growth**
- D) Both A and B**

**20- The age distribution of a population reflects its**

- A) history of survival**
- B) reproduction**
- C) potential for future growth**
- D) all of the above**

## Answers table

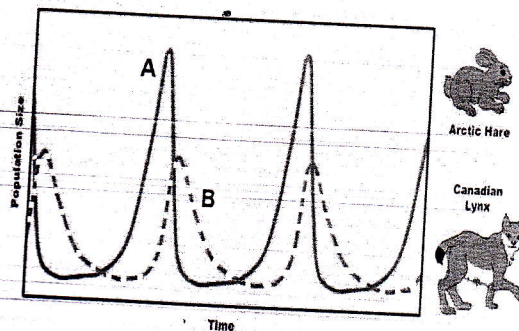
[illegible]



III- Answer ONLY FIVE questions of the following:

(20 marks)

1. This opposite graph shows the relationship between prey population density and predator population density over an extended period of time.

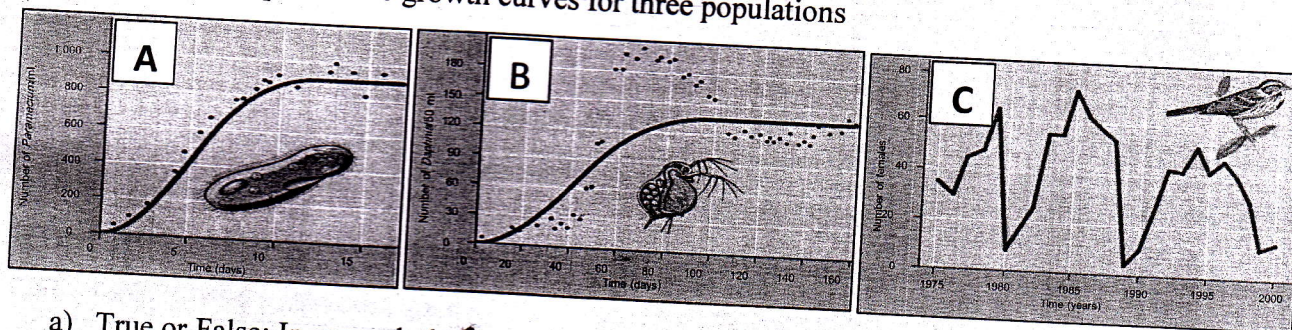


- The solid line A represents ..... population while the dotted line B represents ..... population.
- The prey population will grow ..... when the predator is absent.
- A predator is ..... (e.g. ....) While the prey is ..... (e.g. ....).

2. Complete the following table to show the differences between 'r' and 'K' selection species

	r-selected species	K-selected species
Mortality		
Survivorship		
Population size		
Length of life		

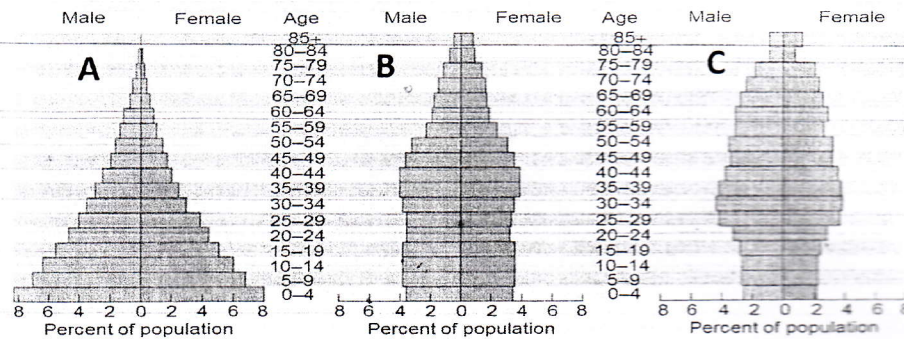
3. The following graphs shows growth curves for three populations



- True or False: In general, the three populations grow exponentially .....
- Population ..... overshoots the carrying capacity.
- Population ..... Fluctuates greatly around the carrying capacity.
- Population ..... fits S-shaped curve.



4. The following graphs shows Age Structure in different Human populations



- a) Population ..... is a slow growth e.g. ....
- b) Population ..... is a rapid growth e.g. ....
- c) Population ..... is a decrease e.g. ....
- d) Generally, in aging populations the ratio of young to adult is approximately .....

## 5. Illustrate the important aspects of life histories

[illegible]







Assiut University  
Faculty of Science  
Department of Zoology

June, 2015

Third level (Zoology Section)  
Principles of Embryology (334Z)  
Time: Two hours

.....  
**I-Select the correct answer from the alternatives given: (10Marks)**

**1- Primitive streak is not found in:**

- a-Fishes                      b-Aves                      c-Mammalian                      d-Reptilia

**2- In frog, gastrulation is completed by:**

- a-Epiboly                      b-Emboly  
c-Both epiboly and emboly                      d- Delamination

**3- Which one is concerned with the reproduction in mammals:**

- a-Uriferous tubules                      b- Seminiferous tubules  
c- None of the above

**4- Meroblastic cleavage occurs in:**

- a-Amphioxus                      b-Frog                      c-Rabbit                      d-None of these

**5- Polar bodies are formed during the formation of:**

- a- Ova                      b- Sperms                      c-Spermatocytes                      d-Enzymes

**6- Which of the following is not found during development of Amphioxus:**

- a- Coelom                      b- Blastocoele                      c-Extraembryonic membranes  
d- Germinal layer

**7- Corona radiata is present in:**

- a- Amphibian egg                      b- Reptilian egg                      c-Avian egg                      d-Mammalian egg

**8- Amnion develops in:**

- a-Reptilia                      b-Bird                      c-Mammal                      d- All of them

**9- Parthenogenesis is:**

- a-Artificial fertilization                      b- Fertilization of egg by a sperm  
c-Sperm dies without fertilization  
d-Eggs undergoes cleavage without fertilization

**10-The eggs of elephant are:**

- a- Alecithal                      b-Microlecithal                      c- Mesolecithal                      d-Macrolecithal

**II- Give an account on three of the following: (30Marks)**

**A- Allantoic placenta.**

**B- Development of mesoderm in Amphioxus.**

**C- Mechanism of cleavage.**

**D- Various types of blastula found in some chordates.**

**III-1- Give the morphogenetic movements in chick. (5Marks)**

**2- Describe the gray crescent formation and its importance in amphibian development. (5Marks)**

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Best wishes

Prof. Abdallah B.Mahmoud



قسم علم الحيوان



جامعة أسيوط - كلية العلوم

اختبار مادة البيئة المائية ٢٠١٤-٢٠١٥

الزمن: ساعتان.

أجب عن الأسئلة الآتية:

س ١: اختر الإجابة الصحيحة من بين الأقواس: (١٠ درجات):

- 1- (Marine ecosystem – Freshwater ecosystem - both) cover 71.8% of the Earth's surface.
- 2-Wave action in aquatic habitat can be considered as (biotic factor - physical factor- chemical factor- all).
- 3- (Herbivorous – predators – producers- dissolved gases- all) in aquatic habitat can be considered as abiotic factor.
- 4-Consumers in aquatic habitat include (zooplankton – algae- both).
- 5-Organisms found in freshwater habitat include Benthos – Nekton- Invertebrates-Vertebrates-all).
- 6- The middle step in eutrophication of aquatic ecosystem is (the increasing of nutrients- algal blooming- formation of detritus).
- 7- The deep water in marine habitat is the (profundal- the benthic – the oceanic) zone.
- 8- The aquatic organisms include (Zooplankton – Phytoplankton – Nekton - all).
- 9- (Epilimnion- Metalimnion- Hypolimnion) is the deepest portion of the lake.
- 10- Coral reefs development is enhanced by (strong wave action – high turbidity- both).



س ٢: ضع الرقم المناسب من فقرات العمود (A) أمام ما يناسبه من فقرات العمود B) (١٥ درجة):-

A	B
1- Recycling of nutrients.	+ Is an essential trace element for algae ( ).
2-Marine ecosystem	+ Are important minor nutrients found in short supply in aquatic habitat ( ).
3-The Oceanic zone	+ Are important nursery areas for fish and birds ( ).
4- Freshwater ecosystem	+ are included under lentic water ( ).
5-Rivers	+ are the animals of the plankton ( ).
6- Basin morphometry	+May exist as combinations of organic and inorganic compounds ( ).
7-The pelagic zone	+ It gives a good indication of eutrophication ( ).
8- Humic acid	+ generates 32% of the world's net primary production ( ).
9-BOD	+ Is one of the functions of aquatic ecosystem ( ).
10- Chemicals in aquatic habitat	+ Is the relatively shallow part of the ocean ( ).
11- Zooplankton	+ generates nearly 3% of the net primary production ( ).
12- Ponds	+ have swift unidirectional water flow ( ).
13- Estuaries	+ Is considered as one factor that determines any aquatic structure ( ).
14- Cobalt, copper, Zinc	+ Is the open water of the lake ( ).
15- Cu	+ Belongs to the Chelating compounds in natural waters ( ).

س ٣: أكتب المصطلح العلمي الدال على كل عبارة مما يأتي: (١٠ درجة):-

- 1- A process takes place in bays in which they become enriched by nutrients.
- 2- The depth at which rapid change in a substance occurs in the lake.
- 3- A group of organisms found on the mud of aquatic habitat.
- 4- A group of organisms that occupies a middle position in the food pyramid.
- 5- The organic compounds that decompose very slowly.
- 6- A factor that limits the distribution of corals in the tropical zones.
- 7- A substance in the soil that buffers the effects of acid rains.
- 8- A dominant feature that structures the lotic environment.
- 9- The cause of absence or reduction of reefs from large areas on the west coast of south and Central America.
- 10- The open water characterized by the absence of contact with either the lake bottom or shore.

س ٤: (٥ درجات):-

أكتب الكلمة أو الكلمات الناقصة فيما يلي:

- 1- Very deep lakes, may have chemical stratification that depends on .....
- 2- Estuarine structure is modified by a-.....  
b-..... and C- .....
- 3- The.....zone is the area located between high and low tide.
- 4- .....has an adverse effect on corals.
- 5- The importance of corals are: a.....  
.....  
b.  
c.  
d.

س ٥: ماذا تتوقع في الحالات الآتية: (١٠ درجات):-

- 1- Increasing of phosphates in aquatic habitat.
- 2- Increasing of turbidity in the Red sea.
- 3- Adding fertilizers to aquatic habitat.
- 4- Decreasing salinity of water in the Red Sea.
- 5- Increasing of sulfur dioxide and carbon dioxide in the air.

**With best wishes**



بسم الله الرحمن الرحيم

جامعة أسيوط  
كلية العلوم - قسم الجيولوجيا

امتحان المستوى الرابع بكلية العلوم شعبة علم الحيوان

المادة: جيولوجيا تاريخية لغير طلاب الجيولوجيا (ج311)

الزمن: ساعتان

الدرجة: 50 درجة

دور يونيو 2015/2014م

ملحوظة: الامتحان يتكون من صفحتين

**The first question (10 Marks)**

Choose the correct answer:

- 1- The largest supercontinent during the Permian period was known as  
a) Pangaea    b) Laurentia    c) Gondwanaland    d) Rodinia
- 2- Which of the following terms of things found in rocks is not part of the Precambrian rock record?  
a) Stromatolites    b) shelled organisms    c) algae    d) bacteria
- 3- The smallest formal unit of the Chronostratigraphy.  
a) Period    b) Stage    c) Series    d) Era
- 4- The Geologic age of *Basilasaurus*  
a) Paleocene    b) Eocene    c) Quaternary    d) Miocene
- 5- The principle of uniformitarianism is often summarizing  
a) supernatural forces at work  
b) conditions existing today cannot form rocks as in the past  
c) the present is the key to the past  
d) rocks cannot be made in the laboratory
- 6- Greenhouse effect will lead to .....  
a) an increase in Oxygen Production  
b) greater rainfall  
b) decrease in atmospheric pressure  
c) an increase in the temperature
- 7- The geologic age of the appearance of birds is.....  
a) Quaternary    b) Permian    c) Jurassic    d) Miocene

- 8- Which geologic period is named for its famous chalk deposits?  
a) Cretaceous    b) Jurassic    c) Paleogene    d) Triassic
- 9- Eras of the Standard Geologic Time Scale are subdivided into:  
a) Eons    b) Epochs    c) Ages    d) Periods
- 10- The first form of vertebrate life on the Earth  
a) Jawless Fish    b) Armored fish    c) cartilage fish    d) bony fish

**The second question (10 Marks)**

Compare between two only of the following:

- 1- The Hercynian and The Laramide Orogenies
- 2- The climate in Paleozoic and Mesozoic eras
- 3- The Proterozoic and Paleozoic biota.

**The third question (10 Marks)**

Write on four only:

- 1) Proterozoic climate    2) K/P extinction event
- 3) Fossils succession    4) Radioactive dating
- 5) Solar Nebula

**The fourth question (10 Marks)**

- 1- Tabulate the rock-building fossils throughout the Paleozoic Era.
- 2- Write the derivation of four only of the following:  
a) Miocene    b) Holocene    c) Cambrian    d) Triassic    e) Carboniferous

**The fifth question (10 Marks)**

Give one reason for four only of the following:

- a) The formation of Atlantic Ocean    b) The closure of Iapetus Ocean
- c) The Formation of Indian Ocean    d) The formation of Red Sea
- e) The Mediterranean Salinity Crisis

تمت الأسئلة مع أطيب الأمنيات بالنجاح والتفوق  
إ.د/ ناجح عبدالرحمن عبيدالله



**See Next Page**

(c )

**13- Cushing syndrome is results from.....by adrenal gland.**

- a-hypersecretion of glucocorticoids      b-hyposecretion of glucocorticoids  
c hypersecretion of aldosterone      d-hyposecretion of aldosterone

**14- Synthesis and secretion of melatonin is affected by**

- a-light exposure    b-level of tryptophan    c-level of serotonin.    d- level of tyrosine

**15- In uterine cycle, endometrium starts to repair itself and proliferate under influence of.....**

- a-oestrogen      b-progesterone      c- FSH      d-LH

**16-The thick bundle of nerve fibers that connects the two cerebral hemispheres is .....**

- a-corpus collosum      b-basal ganglia      c-hippocampus      d-limbic system

**17-The greatest concentration of serotonin is found in.....**

- a- gastrointestinal tract    b- platelets      c- CNS      d-PNS

**18-Upper motor neuron (UMN) originates in nuclei deep in .....**

- a-cerebrum      b-pons      c-thalamus      d-medulla oblongata

**19- Mesissner's corpuscle as tactile receptor is found in.....**

- a-everywhere in the skin      b-non hairy parts of the skin  
c-deeper layer of the skin      d- beneath the skin and deep facial tissue.

**20- The possible causes of sensoneural hearing loss all of the following EXCEPT.....**

- a- certain viral or bacterial infection      b- stroke or brain tumor  
c- injury by loud noise      d- perforated eardrum

**II- Using diagram describe the following (20 marks, 5 marks each):**

- a- How steroid hormones exert their effects on their target cells.  
b- Mechanism of ovulation  
c- Mechanism of transmitter release from the presynaptic terminals  
d- Process of hearing.

**III- Answer on Five only of the following (20 marks, 4 marks each)**

- 1- Effect of testosterone on basal metabolic rate.
- 2- What are the five plexuses and which spinal nerves contribute to each.
- 3- Explain how the secretions of the adrenal gland are regulated.
- 4- Explain the basic structure of a synapse
- 5- Comparison between sympathetic and parasympathetic system.
- 6- Write on the five types of sensory receptors.

**Good Luck!**





**The first question: Choose the correct answers (18 only):      Marks(18)**

- 1-Neurofilaments are presents in ( A ) Astrocytes (B)Neuron(C)Muscle cells.
- 2-Astrocytes cells contains (A) Intermediate filaments (B) Microfilaments(C)Microtubules.
- 3- Smooth muscles contains (A) Desmin (B ) Vimentin (C Cytokeratin.
- 4-Peroxisomes destroys(A)Hydrogen peroxide(B)Hydrochloric acid(C)Free radicles.
- 5-Microbodies means (A )Peroixsomes (B)Residual bodies(C)autolysosomes.
- 6-Alpha particles of glycogen means( (A)large particles (B)small particles (C)medium) particles.
- 7- Beta granules of glycogen are present in(A)Muscle cells(B) Liver cells(C)Pancreatic cells.
- 8-Cell inclusions are, (A) Permanent(B)Temporary(C)Residual ,structures within the cells.
- 9-Dust and minerals are (A)Endogenous(B)Exogenous(C)Both.
- 10-Survivial signal such as (A)Cell-cell contact(B) Radiation(C)Hormones.
- 11-Free radicals are molecules with (A) Unpaired (B) Paired (C) Stable of electrons.
- 12-Synchrony by induction: involve (A)Temperature cycles(B)Light cycles(C) Filtration.
- 13- Fas and the TNF receptor are ((A) Integral (B)Peripheral (C) Carrier ,membrane proteins with their receptor domains exposed at the surface of the cell.
- 14- Reactive oxygen species causes migration of Bax to the surface of the mitochondrion which(A) inhibits (B)activate (C)stops, the protective effect of Bcl-2 and inserts itself into the outer mitochondrial membrane punching holes in it.
- 15- The apoptosomes bind to and activate caspases (A)9(B)3(C)7,in apoptosis of internal signal.
- 16- Golden-brown, iron containing pigment which acumulated in the cytoplasm of the phagocytes of spleen is (A)Haemosiderin (B) lipofucsin(C)Melanin.
- 17- The process by which a cell loses its ability to divide, grow, and function. This loss of function ultimately ends in death consequence of aging is called (A)Senescenceis (B)aging (C)proliferation.

(c)

18-In healthy cells, the outer membrane of mitochondria contains **protein called**(A) Apaf-1(B)Bcl-2(C)BAX. 2-(A) Apaf-1(B)Bcl-2.

19- Fat depots are(A) neutral lipids(B)masked lipids (C) phospholipids.

20-(A) Apaf-1(B)Bcl-2 (C)BAX (D)caspase-9,activate other caspases(3&7).

**The Second question: (Put True or False for the followings):- Marks (10)**

1- Damage and Inflammation are induced in the final stage of necrosis ( ).

2- Phosphatidylserine flipping to the outer plasma membrane represents sign of molecular biochemical features of apoptosis ( ).

3-Leakage of  $Ca^{++}$  and Ca-activated hydrolases degrade lipid, protein, RNA, DNA is character of apoptosis ( ).

4-Multipotent stem cells can differentiate into a number of cells, but only those of a closely related family of cells ( ).

5-Adult stem cells are hidden deep within organs, surrounded by millions of ordinary cells ( ).

6- The lag phase of growth, it is a long interval in which there is little or no increase in the number of cells present in the population. It's length is variable even for cultures of same type of cells( ).

7- Lymphotoxin means (TNF- $\beta$ ) death inhibiting binding to receptors at the cell surface ( ).

8- Metaphase contain any checkpoint ( ).

9- Antioxidant is donated electron ( ).

10- lipofuscin is thought to be end product of lysosomal activity( ).

**The third question: (Identiy three only from the followings):- Marks(6)**

1-Reparative regeneration.

2-Induced pluripotent stem cells.

3-Dubling time.

4-Oxidative stress.

5-Two chick points of cell cycle



(۲)

**The fourth question: (Discuss only Three from the followings with drawing):-**

**Marks(6)**

- 1-Morphology of necrosis.
- 2-Stem cells function.
- 3- What makes a cell decide to commit suicide.
- 4- Apoptosis-Inducing Factor (AIF).
- 5-Explain the growth curve.

**The fifth question: (Rerrange the following steps):-**

**Marks(4)**

- 1-Stem cells are classified according to the potency, into: (Totipotent-Oligopotential-Multipotent-Pluripotent-Unipotent).
- 2-Normal steps of apoptosis: ( Bax/Bak channels open - No inflammation - Leakage of CytC - Increased mitochondrial permeability - CytC/Apaf1 - activated caspases cascade to activate DNase - Condensed nucleosomal DNA is cut into 200 bp fragments - condensed apoptotic bodies form ).

**The sixth question: (Write the Scientific Name):-**

**Marks(4)**

- 1- Term used to describe the steady state level of oxidative damage in a cell, tissue, or organ caused by the reactive oxygen species.
- 2- The process characterized by the declining ability to respond to stress, increasing homeostatic imbalance and increased risk of aging-associated diseases followed by death .
- 3-Brown pigment synthesized by special cells called melanocytes .
- 4- Light brown pigment that fluoresces a golden-brown in ultraviolet light and is progressively increased with advancing age.

**The seventh question: Explain the following (only one):-** **Marks(2)**

- Why Reactive oxygen species is very dangerous.
- What is the best time to perform the cell subculture.

End of questions

**Dr. Hanem Saad Abdel-Tawab**

Department of Zoology

Course: Molecular Biology & Cell (Z318)

Second semester 2014-2015

Time: 2 hours Total degree: 50



قسم علم الحيوان  
المقرر: البيولوجيا الجزيئية والخلية (Z318)  
المستوى الثالث  
الفصل الدراسي الثاني 2014-2015  
الزمن: ساعتان الدرجة الكلية: 50

**Answer all the following questions:**

**Q 1: Choose the correct answer (one answer only): (10 marks)**

1. **Human somatic cell has:**  
a)- 23 chromosomes  
b)- 32 chromosomes  
c)- 46 chromosomes  
d)- 64 chromosomes
2. **Division of cytoplasm following the nuclear division is known as:**  
a)- cytokinesis  
b)- cytokine  
c)- cytolysis  
d)- cytoskeleton
3. **Human gametes are:**  
a)- liver and kidney cells  
b)- sperm and ovum  
c)- testis and ovary  
d)- DNA and RNA
4. **The units that specify an organism's inherited characters are known as:**  
a)- gonads  
b)- chromatids  
c)- sperms  
d)- genes
5. **The nuclear membrane disappears during:**  
a)- prophase  
b)- prometaphase  
c)- metaphase  
d)- anaphase
6. **The interphase of the cell cycle has three subphases:**  
a)- G1-G2-G3  
b)- G-S-G1  
c)- G1-S-G2  
d)- G1-S1-M
7. **The cells that are used for preparation of an individual's karyotype are:**  
a)- all blood cell  
b)- white blood cells  
c)- red blood cells  
d)- blood platelets
8. **Crossing over is a process that occurs during:**  
a)- metaphase I  
b)- metaphase II  
c)- prophase I  
d)- prophase II
9. **The viral genome of HIV consist:**  
a)- double-stranded DNA  
b)- double-stranded RNA  
c)- single-stranded DNA  
d)- single-stranded
10. **Cristae is the inner folded membrane of:**  
a)- Golgi apparatus  
b)- mitochondria  
c)- ER  
d)- lysosome

باقي الاسئلة خلف الصفحة



**Q2 Fill in the following sentences: (20 marks)**

1. The three mechanisms which contribute to genetic variation are: .....and .....
2. ....is defined as an organism having a pair of two different alleles.
3. Genotype is a description of an organism's .....
4. A recessively inherited disorder shows up only in the individuals who inherit ..... recessive allele from parents.
5. Haemophilia is a sex-linked ..... trait defined by the absence of one or more.....
6. Chromosomal aberration is common in meiosis and includes .....and .....
7. Isoleucine is produced from threonine by the aid of an enzyme known as.....
8. The four macromolecules in the animal cell are.....and.....
9. .... and ..... are the two main processes that link gene to protein.
10. In the ..... three consecutive bases specify an amino acid.
11. Each ribosome has one binding site for .....and three binding sites for .....

**Q3 Provide the definitions of only five of the following: (10 marks)**

- |                                 |                   |
|---------------------------------|-------------------|
| 1. Duchenne muscular dystrophy. | 2. Down syndrome. |
| 3. Turner's syndrome.           | 4. Cri-du-chat.   |
| 5. Mutagens.                    | 6. Helicase.      |

**Q4 Write whether each of the following statement is True (✓) or Falls (X): (10 marks)**

1. Lysogenic virus's cycle ends in death of the host.
2. Gram-negative bacteria (have large amount of peptidoglycan) are pathogenic.
3. Lysosomal enzymes work best at pH = 8.
4. The cylinder with 9+2 pattern of microtubules gives rise to the basal bodies of cilia and flagella.
5. Microtubules are made of actin protein.
6. Transcription is divided into three stages: initiation, elongation and termination.
7. rRNA is used to pick up its relevant amino acid in the cytosol.
8. In contrast to bacteria, eukaryotic cells have two RNA polymerases (I and II) in their nuclei and RNA polymerase II is used for mRNA synthesis.
9. Glucose and fructose are aldose sugars.
10. Meiosis division occurs mainly in gonads to form gametes.

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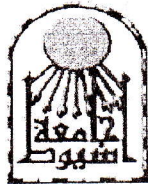
**GOOD LUCK**

**Dr. Gamal Badr**

Associate Professor of Immunology

**Permanent Web site:** [http://www.aun.edu.eg/membercv.php?M\\_ID=393](http://www.aun.edu.eg/membercv.php?M_ID=393)

**e-mail:** [gamal.badr@aun.edu.eg](mailto:gamal.badr@aun.edu.eg)



June 2015

Answer the following question ( Write the answer only in your paper)

A- Fill in the blanks:

(15 Marks)

- 1- *Balantidium coli* inhabits ..... and may cause disease, .....  
. It may reproduce asexually by.....and sexually by.....
- 2- The final host of *Toxoplasma gondii* is .....but the intermediate host is .....
- 3- The intermediate host of *Taenia saginata* is .....whereas in *Plasmodium* spp., is .....
- 4- *Entamoeba gingivalis* lives in .....but *Entamoeba coli* lives in.....they feed on.....
- 5- Infection with *Ancyostoma duodenale* is due to.....but infection with *Ascaris lumbricoides* is due to.....
- 6- The intermediate host of *Heterophyes heterophyes* is.....but the transport host is.....

B- Choose the one correct answer:

( 5 marks)

- 1- The second intermediate host of *Diphylllobothrium latum* (Cyclops- cattle- Sheeps - frogs –none of them)
- 2- *Taenia saginata*, to complete its life cycle requires ( one host- two hosts-three hosts - none of them)
- 3- The insect vector of *Trypanosoma rhodesiense* is (mosquito- house fly – sand fly- none of them)
- 4- Man acts as a intermediate host in (*Taenia saginata* – *Echinococcus granulosus* – Cysticercosis - none of them)
- 5- Auto-infection, could be propagated by (*Ascaris* sp. – *Encylostoma* sp.- *Heterophyes heterophyes* – *Fasciola hepatica* –*Fasciola gigantica* - *Taenia saginata* – *Taenia solium* - none of them )



(C)

C- Put a suitable(✓) or (X) adjacent to the following: (10 marks)

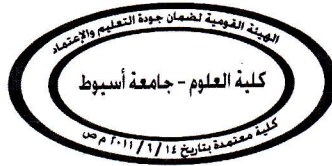
- 1- Fertilization male and female gametes of *Plasmodium* spp. occurs in human blood. ( )
- 2 - Infective stage of *Giardia intestinalis* is trophozoite ( )
- 3 - Infective stage of *Ascaris* sp is cysticercoid larvae ( )
- 4 - The insect vectors of *Plasmodium* sp is male anopheles ( )
- 5- Infective stage of *Entamoeba histolytica* is trophozoite ( )
- 6- *Lymnaea cailliaudi* snail is the intermediate host of *Fasciola gigantica* ( )
- 7- Intermediate host, is the host harbouring asexual forms of Protozoa ( )
- 8- *Trichomonas hominis* lives in human intestine ( )
- 9- Chagas disease is caused by *Trypanosoma cruzi* ( )
- 10- Infective stage of *Fasciola hepatica* is metacercariae ( )

D- Write briefly on four only of the following: (20 marks )  
( illustrating your answer with labeled drawings whenever possible )

- 1- Sources of parasitic, *Toxoplasma gondii* infection.
- 2- *Fasciola* and *Schistosoma* cercariae.
- 3- Types of eggs in *Ascaris* sp.
- 4- Erratic and facultative Parasites
- 5- Infective stage, mode of infection and habitat of the following parasites: *Wuchereria bancrofti*-*Trichomonas vaginalis* & *Enterobius vermicularis*.

.....  
Good luck

Prof. dr., Gamal H. Abed



Assiut University  
Faculty of Science  
Zoology Department

Third year Exam (Zoology)  
Course name: Vertebrate 2  
Course code: (330-Z)  
Time: 2 hours

**Answer the four following questions**

**Question 1:** (20 marks)

- **Choose the single response that is the correct answer of the following.**

1. Important of studying vertebrate due to.

- a) They are the most diverse of the animal phyla
- b) Many of them are contrusted of hard parts
- c) They have the greatest numbers
- d) Bring topics concerning us.

2. The stem of reptiles

- a) Archosauria
- b) Sarchopterigian
- c) Cotylosauria
- d) Archaeoptyx

3. Head movements of Amniota is allowed by the

- a) Cervical vertebrae
- b) Neck region
- c) Two first cervical vertebrae
- d) Trunk muscles

4. Accessory cranial nerves in amniota are

- a) Optic and Olfactory
- b) Ophthalmic and auditory
- c) Spinal accessory and hypoglossal
- d) Oculomotor and trochlear



**5. The Synapsidian skull is characterized by**

- a) Two pairs of temporal fossae
- b) pair of upper temporal fossae
- c) pair of lower temporal fossae
- d) no fossae in temporal region

**6. Snakes swallow big prey that due to**

- a) They have big mouth
- b) They have sharp teeth
- c) They have elastic stomach
- d) Disappears of many bones from the temporal region

**7. Diaphragmatic muscle exist in**

- a) All Reptiles
- b) Only Lizards
- c) Crocodiles
- d) Amphisbanians

**8. Sinus venous incorporated into the heart wall of the**

- a) All Amniota
- b) Lepidosauria
- b) Crocodiles
- d) Sphenodon

**9. Urodaeum of reptiles performs**

- a) Excretion
- b) Reproduction
- c) Osmoregulation
- d) All of the above

**10. Dinosaur and crocodiles are belong**

- a) Cotylosauria
- b) Archosauria
- c) Pterosauria

**11. Which of the following is untrue of the avian skin?**

- b) Contains sweat glands
- b) Contains oily glands
- c) has claws
- d) bears horny scales

Cc /

**12. Which avian group that has crop secret milk**

- a) Passeriformes
- b) Columbiformes
- c) Psittaciformes
- d) Falconiformes

**13. Air sacs perform**

- a) buoyancy
- b) Thermal regulation
- c) Storage of air and respiration
- d) Non of the above

**14. Feather may performs**

- a) Heat conservation
- b) Sexual display
- c) Flight
- d) All of the above

**15. Avian ratite includes**

- a) Chicken
- b) Gulls
- c) Ostrich
- d) Falcons

**16. Mammalian group exhibits an egg laying habit**

- a) Prototheria
- b) Metatheria
- c) Eutheria

**17. Which of the following bones represents the collumella auris**

- a) Incus
- b) Stapes
- c) Malleus

**18. Mammalian jaw consists of**

- a) Dentary and maxillae
- b) Dentary and squamosal
- c) Dentary and jugal
- d) Quadrate and articular

**19. Which of the aortic arches partially disappears during the development of the mammalian embryo**

- a) The right fourth
- b) The left fourth
- c) The right and left



20. Cochlea of inner ear is responsible for

- a) Balance
- b) Sound
- c) Head rotation

.....

**Question 2:** (10 marks)

- **Fill the spaces, no commentary needed**

1. Embryonic membranes develops from..... , while the egg shell develops from.....
2. Reptilian head carried off the ground by.....
3. Mammalian neck supported by ..... cervical vertebrae.
4. Two characters of amniota; 1-.....  
2-.....
5. The inner ear of snakes is responsive to.....

.....

**Question 3:** (10 marks)

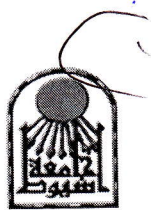
- **Compare between the brain structure in reptiles, birds and mammals**

.....

**Question 4:** (10 marks)

- **Describe two items of the following**

- A- Diapsidian skull and its modifications
- B- The middle ear of mammals
- C- Air sacs of birds.



**Final Exam in Insect Physiology I (343 E) (Time: two hour)**

**Answer the following questions:**

**Question no one:**

- 1- Briefly, using a few sentences, describe what each of the following terms means. (4 points)
  - a- Peritrophic membrane
  - b- Neurosecretory cells
  - c- Vitellogenesis
  - d- Plastron
- 2- Describe types of muscles on the basis of location and on the basis of the arrangement of myofibrils, mitochondria, and nuclei. (6 points)

**Question no two:**

- 1- Compare between the following: (4 points)
  - a- Synchronous and asynchronous muscles
  - b- Thelytokous and Arrhenotokous.
  - c- Peristalsis and segmentation
  - d- Symporters and antiporters
- 2- How neurons transmit messages electrically and chemically? (6 points)

**Question no three:**

- 1- What is the significance for each of the following? (3 points)
  - a- Trachea lined with spiral cuticle (taenidia).
  - b- Passive ventilation is the only type of ventilation in smaller insects.
  - c- Terrestrial respiratory system has large internal surface, but few external opening.
- 2- Describe the structure and chemical composition of insect cuticle and how new cuticle formation; and summarize the process of cuticular sclerotization. (7 points)

**Question no four:**

- 1- Why do insects communicate? and how do insects communicate? (3 points)
- 2- Discuss unique features of the insect circulatory system with regard to: a) haemolymph circulation, b) chemical composition of the haemolymph and c) functions of the haemolymph. (7 points)

**Question no five:**

- 1- Discuss how insect Malpighian tubules function? (4 points)
- 2- Insect hormones can be classified into three broad categories. What are these categories and give an example of a hormone for each of the three. (6 points)

***Good luck***