

Answer these questions:-

First part: Q1- Answer by  $\sqrt$  or X for these sentences: (20 marks, one mark each)

- 1)- Vitamin B2 deficiency leads to accumulation of pyruvic acid in blood due decreased activity of oxidative decarboxylation, and increase of lactic acid in blood. .... ( )
- 2)- Haemolytic disease of newborn is due to a reaction between the RH factor which acts as an antigen in the RBCs of the foetus and corresponding agglutinating antibodies which reach the maternal circulation from the foetal blood. .... ( )
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- 4)- Target cell anemia arise as a result of diminished or absent production of one or more globin chains and is found only in Negrosis. .... ( )
- 5)- One of artificial flavors examples is acetylpropionyl which used to give the mild creamy character or giving butter its characteristic flavor. .... ( )
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- 7)- Leptin informs the hypothalamus about the extent of fat stores and leptin blood level proportionates with fat store. Also it stimulates the secretion of reproductive hormones. .... ( )
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- 11)- Iron deficiency leads to delay blood clotting time and dry skin. .... ( )
- 12)- Lack of storage of intrinsic factor in the liver as in the case of liver cirrhosis leads to megaloblastic anemia. .... ( )



- 13)-Eating an excess of vitamin D leads to the deposition of calcium salts in soft tissues such as kidney, liver and ureter. .... ( )
- 14)-Secretin hormone stimulates stomach to secrete its juice of about two liters per day upon the arrival of food to the stomach. .... ( )
- 15)-Albumin Globulin, glycerol and Gelatin are simple proteins ( )
- 16)- The lack of RBCs is the only cause of anemia. .... ( )
- 17)-- Vermiform Appendix is found at the right side of the body and it did not play any role in food digestion in human. .... ( )
- 18)-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. .... ( )
- 19)-Hereditary spherocytosis , Target cell anemia, Megaloplastic anemia and Sickle cell anemia are examples of hemolytic anemia . .... ( )
- 20)-Saliva Plays an important role in the sense of thirst. Shortage of water in the body dry mucous membrane of the mouth, leading to thirst and thus saliva maintains the regulation of water content in the body. ....( )

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**Second part: Answer only Three questions of the following:- (30 marks, 10 marks each)**

**Q2)**

a- Calculate the basal metabolic rate required to man (95kg body weight) and women (100 kg body weight)?

b-What are the physiological effects of ghrelin? 6 items

**Q3)**

a-What the Causes of Obesity? 6 items

b-Compare between the causes of pernicious anemia and Favism anemia.

**Q4)**

a-What are the biological significance of dietary proteins? 5 items

b-What are the Disadvantages of additives? 5 items

**Q5)**

a-Write on the followings: types of Antibrowning agents - effects of deficiency of Vitamin E

b-Mention the functions of dietary fibers in intestine? 6 items

With my best wishes and great success,

Professor Dr. Mohamed Bassam Al-Salahy

- 3- A cellular structure responsible for production of ribosomes. ....
- 4- An epithelial tissue appeared lesser in relaxation than in normal condition .....
- 5- A vesicle that contains hydrolytic enzymes .....
- 6- Control center of the cell and contains the genetic material (DNA/RNA) .....
- 7- A non-membranous organelle located on the RER and is the site of protein synthesis.....
- 8- Phospholipid bi-layer that surrounds the cell and controls movement of particles into and out of the cell.....
- 9- Is a rigid, strong, long, straight, unbranched fibers that preset in bundles.....
- 10- A connective tissue type that is located under skin and mucosa of digestive tract.....

**C: Give short notes on: (15 marks)**

- 1- Characters of the epithelial tissue.
- 2- Classification of nerve cells according to their function with complete description.
- 3- Two hormones secreted by the pancreas and regulate glucose level in blood.
4. Two hormones regulating calcium homeostasis, mention the secreting gland for each.

**Part II : Taxonomy and Embryology (20 mark)**

**Answer the following questions:**

- 1- Draw the animal kingdom classification scheme and list its criteria of classification
- 2- Define the following terms: (species, animal embryology, gametogenesis, fertilization).
- 3- Explain the differences between acoelomates, pseudocoelomates and coelomate animals (with drawings).
- 4- List 6 characteristics of Protozoa.
- 5- Compare between the nervous system in Cnidaria, Platyhelminthes, Nematoda, Annelida
- 6- Write notes on the main characters of Chordata.
- 7- Summarize Whittaker's classification scheme (explain its classification criteria).

**End of questions**

**Good luck (Dr. Emad, Dr. Safaa and Dr. Ahmed)**





**Answer the following questions**

**Part I: Cytology, Histology and Physiology (30 marks)**

**A: Choose only the single correct answer: (5 marks)**

1. The eukaryotic cell organelle that most resembles a bacterial cell is the .....  
a) Nucleus                      b) Golgi apparatus                      c) Mitochondria                      d) lysosome.
2. Which of the following is found in eukaryotic cells but *not* in prokaryotic cells? .....  
a) Nucleus                      b) Mitochondria                      c) Lysosomes                      d) All are true
3. A membranous organelle that functions to receive, modify, and package proteins for cell secretion is the .....  
a) Mitochondria                      b) Lysosome                      c) Golgi apparatus                      d) Endoplasmic reticulum.
4. Which is incorrect for blood? .....  
a) It is a connective tissue                      b) It is supported by basement membrane  
c) It is mesodermal in origin                      d) It contains cells circulating in the plasma
5. The smooth endoplasmic reticulum functions in synthesis of.....  
a) Glycogen                      b) Proteins                      c) Nucleic acids                      d) Lipids
6. Oxytocin is secreted by the .....gland  
a) Thyroid                      b) Pineal                      c) Parathyroid                      d) a, b and c are false.
7. Tissues that cover and line all body cavities and passageways are called .....tissues  
a) Connective                      b) Epithelial                      c) Nervous                      d) Muscular
8. Which one of the following is lined with stratified squamous epithelium?.....  
a) Stomach                      b) Esophagus                      c) Artery                      d) Urinary bladder
9. The intervertebral disks are example of .....  
a) Fibrous tissue                      b) Fibrocartilage                      c) Long bone                      d) Stratified epithelium
10. Attaches muscle to muscle or bone to muscle.....  
a) Ligaments                      b) Cartilage                      c) Blood                      d) Tendon

**B: Give the scientific expression of the following: (10 marks)**

- 1- A tissue which is characterized by cells scattered in abundant extracellular matrix.....
- 2- Glands secrete products directly into the blood. ....





Assiut University  
Faculty of Science  
Zoology Department



Exam of General Zoology for Industrial  
Chemistry students  
June/2018



Time: 2 hours  
Level: First  
Course Code: 100Z

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

**First question: Choose the best single correct answer (10 marks)**

1. Reproduction by conjugation occurs in .....  
a) *Plasmodium*      b) *Paramecium*      c) *Hydra*      d) *Amoeba*
2. The ribosome is a non-membranous organelle that functions in process of .....  
a) Protein synthesis    b) Pinocytosis    c) Cellular respiration    d) Phagocytosis
3. Which one is acoelomate phylum?  
a) Nematoda      b) Annelida      c) Platyhelminthes    D) Arthropoda
4. The tail of a phospholipid molecule in the cell membrane is .....  
a) Hydrophobic    b) Hydrophilic    c) Neutrophilic    d) Osmophobic
5. Corals belong to .....  
a) Porifera      b) Protozoa      c) Echinodermata    d) Arthropoda
6. Which of these hormones regulate calcium in the blood  
a) Adrenalin      b) parathyroid hormone  
c) Calcitonin      d) Both b and c
7. Which one of the following is highly vascularized?  
a) Cartilage      b) Simple epithelium  
c) Stratified epithelium      d) Areolar connective tissue
8. The circulatory system is opened in .....  
a) Insects      b) *Fasciola*      c) *Amoeba*      d) *Hydra*
9. The only cellular organelle that has its own DNA independent of nucleus is .....  
a) Golgi complex      b) Rough endoplasmic reticulum  
c) Mitochondria      d) lysosomes
10. Hormone produced by the Pineal Gland is .....  
a) Adrenalin      b) Insulin      c) Melatonin      d) Aldosteron

11. Blood originates from which germ layer?

- a) Endoderm      b) Mesoderm      c) Ectoderm      d) Mesoendoderm

12. The cells lining blood vessels and the lung alveoli are classed as .....epithelium.

- a) Simple squamous      b) Columnar      c) Cuboidal      d) Transitional

13. Which organelles modify, sort, and package protein in the cell?

- a) Mitochondria      b) Ribosomes  
c) Golgi complex      d) Lysosomes

14. Connective tissue fibers that have great tensile strength and can be found in ligaments and tendons are.....

- a) Elastic      b) Reticular      c) Yellow fiber      d) White collagenous

15. ....is a three layered embryo.

- a) Cleavage      b) Gastrula      c) Blastula      d) Morula

16. A cell that lack both nuclear membrane and membranous organelles known as.....

- a) Eukaryotic cell      b) Animal cell      c) Prokaryotic cell      d) Plant cell

17. If two organisms are in the same phylum, they must also be in the same:

- a) Genus      b) Species      c) Class      d) Kingdom

18. The cells that form bone are known as.....

- a) Fibrocytes      b) Chondrocytes  
c) Osteocytes      d) Hematopoietic stem cells

19. The ..... controls what enter and leaves the nucleus.

- a) Nucleus      b) Cell membrane      c) Nuclear membrane      d) Cytoplasm

20. What type of epithelial cells is taller than they are wide?

- a) Squamous      b) Columnar      c) Stratified      d) Cuboidal

Question	1	2	3	4	5	6	7	8	9	10
Answer from (a, b, c, d)										
Question	11	12	13	14	15	16	17	18	19	20
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**B: Give the scientific expression of the following: (10 marks)**

- 1- A tissue which is characterized by cells scattered in abundant extracellular matrix.....
- 2- Glands secrete products directly into the blood. ....



3. Write One function only for Four of the following:

- a) Cilia of *paramecium* .....
- b) Golgi complex .....
- c) Bone .....
- d) Contractile vacuoles in *Aamoeba* .....
- f) Growth hormone.....

4. Mention Four hormones secreted by anterior lobe pituitary gland:

Hormone	Target organ
1)	
2)	
3)	
4)	

5. The four major tissue types are:

- a) ..... such as.....
- b) ..... such as.....
- c) ..... such as.....
- d) ..... such as.....

**Q4: Answer of the following: (12 marks)**

1. Complete the following table about different types of muscles. (4 marks)

Type of muscles	1) Skeletal	2) .....	3) .....
Action	.....	.....	Involuntary
Striation	Striated	.....	.....
Location	.....	Wall of the heart	.....

**Q2: Complete the following sentences (10 marks)**

- 1- A science of biology deals with the structure and function of tissues.....
- 2- In insects, other arthropods and most molluscs the circulatory system is .....
- 3- The neurons are classified into.....,....., and ..... according to the number of processes arising from the body.
- 4- The deficiency of insulin in blood causes a disease known as.....
- 5- The scientific name of human being is.....
- 6- Animals with a cavity surround the gut and originate from mesodermal layer .....
- 7- The movement of molecules or ion from high to low concentration across the protein molecules is called.....
- 8- Spermatogenesis occurs in ....., but ..... occurs in the ovary.
- 9- ..... is an organelle which known as "Power house" of the cell.
- 10- Chemical messengers secreted by endocrine glands called .....

**Q3: Answer the following: (10 marks)**

**1. Write Four characteristics of Phylum Protozoa.**

- a).....
- b).....
- c).....
- d).....

**2. List Four characteristics of chordate animals.**

- a).....
- b).....
- c).....
- d).....



2. Types of eggs according to the amount and the distribution of yolk: (3 marks)

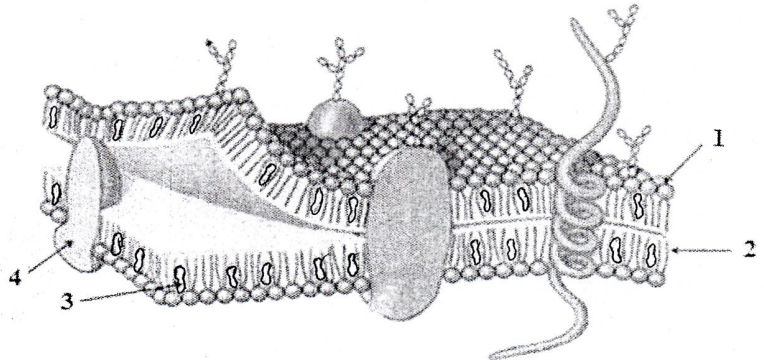
Type	<u>Isolecithal</u>	.....	.....
Distribution of yolk	.....	In center around nucleus	.....
Example	.....	.....	Eggs of birds

3. Write True (✓) on right or False (X) on wrong sentences: (5 marks)

- a) Hyaline cartilage has less fibers and its matrix is glassy ( )
- b) Nematocyte is a type of cells present in phylum Platyhelminthes ( )
- c) Pancreas and gonads are mixed glands ( )
- d) Nucleus controls all processes that happen in the cell ( )
- e) Division occurs in multiplication phase is meiosis ( )

**Q5: Answer Four only of the following: (8 marks)**

(A)



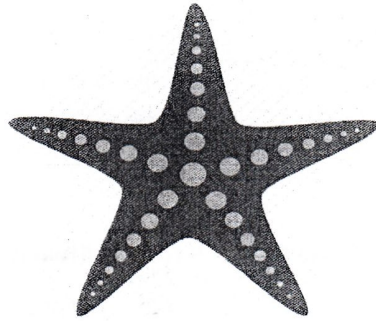
The diagram shows a cross-section of a cell membrane. It features a phospholipid bilayer with hydrophilic heads and hydrophobic tails. Various proteins are embedded in the membrane, including a large integral protein (labeled 3) and a smaller peripheral protein (labeled 4). Carbohydrate chains (glycocalyx) are attached to some proteins (labeled 1). A wavy line (labeled 2) represents the cell's outer boundary or a specific membrane layer.

This diagram represents:

1..... 2.....

3..... 4.....

(B)



Common name of this animal.....

Identify the type of symmetry.....

This animal belongs to Chordate animals (true or false).....

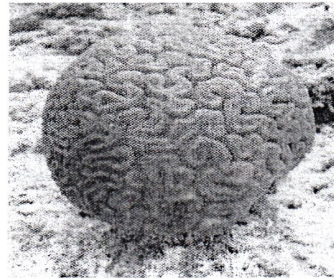
This animal belongs to phylum.....

(C)



- 1) The diagram refers to a disease called .....
- 2) This disease caused by .....

(D)



- 1) The common name of this coral is .....
- 2) What is its class?  
.....

(E) Draw only different simple epithelial tissues:

*By Drs. Zeinab Elbakary & Hanan Waly  
(With our best wishes)*



2. Types of eggs according to the amount and the distribution of yolk: (3 marks)

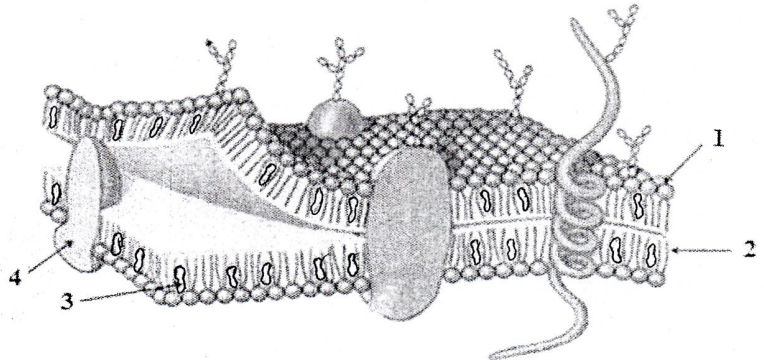
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