



B-Cytology & Histology (35 marks)

Answer the following questions

I - Choose the one best answer (20 Marks)

1- Which of the following is not true of the plasma membrane?

- A) Contains receptors for communication
- B) Forms intercellular connections
- C) Is a rigid sheet of molecules with little flexibility
- D) Regulates material movement into and out of the cell

2- Which part of the cell is responsible for packaging and transporting substances made in the cell?

- A) Endoplasmic reticulum
- B) Mitochondria
- C) Golgi apparatus
- D) Lysosome

3- Processes that move molecules passively across the cell membrane include

- A) Diffusion
- B) Osmosis
- C) Facilitated diffusion
- D) All of the above

4- The rough endoplasmic reticulum functions in

- A) Transport, respiration, and synthesis
- B) Contraction, transport, and diffusion
- C) Synthesis, storage, and transport
- D) Storage, transport, and digestion

5- Which of the following lists *only* membrane-bound organelles?

- A) Lysosomes, ribosomes, centrosome, endoplasmic reticulum, Golgi apparatus
- B) Endoplasmic reticulum, Golgi apparatus, mitochondria, lysosomes.
- C) Microtubules, nucleus, lysosomes, ribosomes, mitochondria, cilia
- D) Mitochondria, cilia, centrioles, Golgi apparatus, endoplasmic reticulum, nucleus.

6- Most of a cell's ATP is synthesized by membrane-bound organelles called

- A) Ribosomes
- B) Lysosomes
- C) Mitochondria
- D) Nucleoli

7- Extracellular fluid is also called

- A) Interstitial fluid
- B) Intracellular fluid
- C) Cytosol
- D) Cytoplasmic matrix

8- Which of the following are types of endocytosis?

- A) Facilitated diffusion and bulk filtration
- B) Osmosis and active transport
- C) Pinocytosis and phagocytosis.
- D) None of the above

9- The paired chromatids are aligning across the center of the cell.

- A) Interphase
- B) Prophase
- C) Anaphase
- D) Metaphase

10- Two nuclear membranes are formed around the chromosomes located at opposite ends of the cell.

- A) Cytokinesis
- B) Telophase
- C) Metaphase
- D) Prophase

11- Each chromosome is made of identical halves called _____.

- A) Centromeres.
- B) Centrioles
- C) Chromatids
- D) None of the above

12 The paired chromatids are pulled apart during anaphase. The new cells that are formed consist of chromatids, now called chromosomes. During which phase of the cell cycle is DNA replicated??

- A) G1 phase of interphase
- B) S phase of interphase
- C) G2 phase of interphase
- D) All of these.

13- Which of the following phases of meiosis is being described? The paired chromatids are separating and are being pulled to opposite ends of the cell. squamous epithelium

- A) Anaphase I
- B) Anaphase II
- C) Telophase II
- D) Both A and B are correct

14- A group of organized _____ working together forms _____. An organized group of the latter work together to form _____.

- A) Tissues; organs; cells
- B) Organs; cells; tissues
- C) Cells; Tissues; organs
- D) None of the above

15- If you observe a layer of columnar cells of varying heights, they would be called _____ columnar cells.

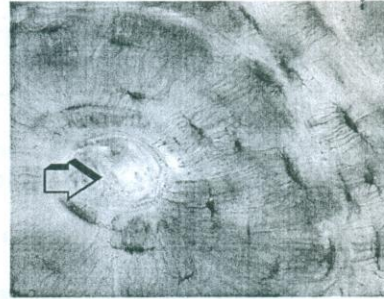
- A) Simple
- B) Stratified
- C) Transitional
- D) Pseudostratified

16- Which cell type releases histamine?

- A) Mesenchymal cell
- B) Fibrocyte
- C) Adipocyte
- D) Mast cell

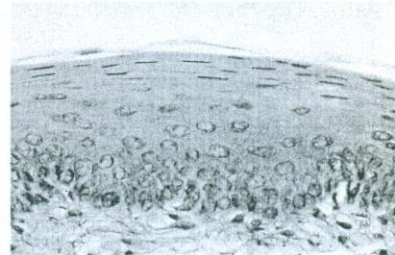
17- Identify a histological feature

- A) Osteocyte lacuna
- B) Canaliculi
- C) Volkman canal
- D) Haversian canal



18- Identify a tissue type

- A) Fibrous cartilage
- B) Stratified columnar epithelium
- C) Stratified squamous epithelium
- D) Pseudostratified epithelium

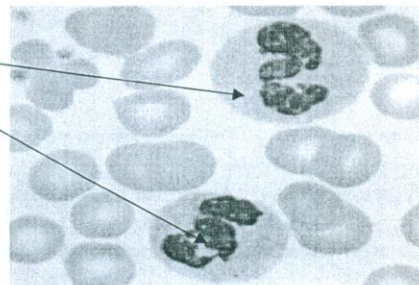


19-How many percent of all leucocytes in healthy individuals are Baophils?

- A) ~ 0.5%
- B) ~ 60%
- C) ~ 30%
- D) ~ 30%

20-Arrows show a cell type

- A) Eosinophil
- B) Neutrophil
- C) Lymphocyte
- D) Megakaryocyte



II - Explain briefly the following:- (9 Mark)

- A) Characters of nervous tissues (3)
- B) Give 3 functions of plasma membrane (3)
- C) Differences between Meiosis & Mitosis (3)

III- Write the missing words (6 Marks)

- 1----- is responsible for packaging and producing proteins
- 2-----are found only in animal cells.
- 3- The cytoskeleton is made of -----
- 4- Passive transport moves materials -----the concentration gradient or from ----
-----to -----concentration.
- 5- When cell engulfing bacteria is called ----- or "cell eating".
- 6 -The longest part of a mature cell's life cycle is -----

Please answer questions I as shown in the following table

| Quest-No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | ----- | 20 |
|-----------|---|---|---|---|---|---|---|---|-------|----|
| Answer | | | | | | | | | | |

Best Regards

Dr. Eman A. Mousa



Using color pencils is allowed

There is another page for Zoology exam

Answer the following questions.

QUESTION I: (5 MARKS). Choose the correct answer.

- Ribosomes are found in
a. Bacteria b. Algae c. Fungi d. all (a, b and c)
- Respiratory enzymes in bacteria are present in
a. Capsule b. Cell wall c. Plasma membrane d. flagella
- Parameter(s) that could be taken in the classification of living organisms is(are) the structure of:
a. Cell b. Nucleus c. Cell wall and cell membrane d. All (a, b and c)
- Penicillium sp.* is related to subdivision
a. Zygomycotina b. Ascomycotina c. Basidiomycotina d. Mastigomycotina
- Zygnema sp.* contains..... Chloroplast.
a. star-shaped b. cup-shaped c. spiral-shaped d. discoid-shaped

QUESTION II: (6 MARKS) Show by drawing the structure of each of the following:

- Bacteriophage
- Chlamydomonas sp.*
- Rhizopus sp.*

QUESTION III: (12 MARKS).

A. Write the scientific term of each of the following.

- It is the outer rigid envelope of bacterial cell and composed of peptidoglycan layers.
- It is a thallophytic organism, contain chlorophyll a and produce O₂ during photosynthesis.
- It is a type of reproduction in which two gametes are joined together.
- It is the distance between each two heterocysts.
- It is a fungus which attacks vegetative structure of Cruciferae plants and cause white rust.
- It is an extra-chromosome that present in some bacterial cells.

B. List the main functions (importance) of the following (four functions are enough):

- Bacterial cell wall.
- Bacteria capsule.
- Bacteria

QUESTION IV: (12 MARKS)

Differentiate between each two of the followings (four differences are enough, drawing is not required).

- Nostoc sp.* and *Chlamydomonas sp.*
- Albugo sp.* and *Oscillatoria sp.*
- Virus and Fungi

With my best wishes

Dr. Eithar El-Mohsnawy