



KENYATTA UNIVERSITY

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (MEDICAL LABORATORY SCIENCE)

HML 100: BASIC CELL BIOLOGY

1ST SEMESTER 2022/2023

TIME: 2 HOURS

INSTRUCTIONS:

SECTION A: ANSWER ALL QUESTIONS (4 MARKS EACH)

1. Differentiate between:
 - a) Secretory and transport vesicles. (2 marks)
 - b) Primary and secondary lysosomes. (2 marks)
2. a) Name cell's endoskeleton. (1 mark)
b) List examples of cytoskeleton. (3 marks)
3. Differentiate between Gram positive and Gram negative bacteria. (4 marks)
4. Using well labeled diagrams, describe how yeast cells identify their mates. (4 marks)
5. a) Give an example of a single-celled eukaryotic microorganism. (1 mark)
b) Name THREE stages (processes) of cell signaling. (3 marks)

SECTION B: ANSWER ANY ONE QUESTION (20 MARKS EACH)

6. Discuss:
 - a) Types of intercellular signaling. (10 marks)
 - b) Cell theory including modern cell theory. (10 marks)
7. a) Outline functions of the kidney. (6 marks)
b) Discuss mitosis. (12 marks)

SECTION C: ANSWER ALL QUESTIONS IN THE ANSWER BOOKLET (½ M. EACH)

1. Which of the following is/are FALSE statement/s?

- a) Yeasts are fungi
- b) Yeasts are bacteria
- c) Yeasts are eukaryotes
- d) DNA is a double helix structure

2. The term cell was given by

- a) Robert Hooke
- b) Robert Brown
- c) Schwann
- d) De Bary

3. Which of the following is an acellular organism?

- a) Algae
- b) Bacteria
- c) Virus
- d) Fungi

4. The membrane around the vacuole is known as

- a) Tonoplast
- b) Elaioplast
- c) Cytoplast
- d) Amyloplast

5. Microfilaments are composed of a protein called

- a) Tubulin
- b) Actin
- c) Myosin
- d) Chitin

6. A plant cell wall is mainly composed of

- a) Protein
- b) Cellulose
- c) Lipid
- d) Starch

Glycolipids in the plasma membrane are located at

- a) Inner leaflet of the plasma membrane
- b) The outer leaflet of the plasma membrane
- c) Evenly distributed in the inner and outer leaflets
- d) It varies according to cell types

8. Lysosomes are known as “suicidal bags” because

- a) Parasitic activity
- b) Presence of food vacuole
- c) Hydrolytic activity
- d) Catalytic activity

9. The properties of integral membrane proteins can be studied by

- a) Atomic force microscopy
- b) Cryo-sectioning and electron microscopy
- c) Freeze-fracture technique and electron microscopy
- d) All of the above

10. The oxygen and carbon dioxide crosses the plasma membrane by the process of

- a) Active diffusion
- b) Facilitated diffusion
- c) Passive diffusion
- d) Random diffusion

11. A cell without a cell wall is termed as

- a) Tonoplast
- b) Protoplast
- c) Symplast
- d) Apoplast

12. The function of the centrosome is

- a) Formation of spindle fibres
- b) Osmoregulation
- c) Secretion
- d) Protein synthesis

13. Which cell organelle is involved in apoptosis?

- a) Lysosome
- b) ER
- c) Golgi
- d) Mitochondria

14. Which of the following is used by cells to interact with other cells?
- a) Cell tubules
 - b) Cell junctions
 - c) Cell adhesions
 - d) Cell detectors
15. Which of the following are phagocytic cells?
- a) neutrophils, mast cells
 - b) mast cells, macrophages
 - c) mast cells, antibodies
 - d) neutrophils, macrophages
16. Lysosomes are produced by which of the following cell organelles?
- a) Mitochondria
 - b) Endoplasmic Reticulum
 - c) Golgi Complex
 - d) DNA
17. Which of the following cell organelle is responsible for transporting, modifying, and packaging proteins and lipids?
- a) Mitochondria
 - b) Endoplasmic Reticulum
 - c) Golgi Complex
 - d) DNA
18. RNA is present in which of the following cell organelles?
- a) Cell wall
 - b) Ribosome
 - d) Cytoplasm
 - d) Golgi complex

9. A cell organelle that is present in animal cells but not present in plant cells is?

- a) Cytoplasm
- b) Centrosome
- c) Mitochondrial
- d) Golgi complex

20. Which of the following cells are found in the intestinal lining?

- a) RBCs
- b) Neurons
- c) Epithelial cells
- d) Hepatocytes