



**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2017/2018 ACADEMIC**

**FIRST YEAR SECOND TRIMESTER EXAMINATION**

**FOR THE DEGREE OF**

**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**COURSE CODE: NUR 100**

**COURSE TITLE: CELL BIOLOGY**

**DATE: MONDAY, 30<sup>TH</sup> JULY 2018**

**TIME: 9.00AM- 12.00 NOON**

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**INSTRUCTIONS TO CANDIDATES**

Answer All Questions

Section A: Multiple Choice Questions (MCQ)

20 Marks.

Section B: Short Answer Questions (SAQ)

40 Marks.

Section C: Long Answer Question (LAQ)

40 Marks

**TIME: 3 Hours**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

NUR 100 CELL BIOLOGY

**Section A: Multiple Choice Questions (MCQ)**

**20 Marks**

1. The cells that have no nucleus are known as:
  - A. Eukaryotic cells
  - B. Proliferative cells
  - C. Prokaryotic cells
  - D. Animalcules
  
2. The eukaryotic cell organelles are postulated to have arisen by:
  - A. Eukaryote precursors engulfing small prokaryotic cells
  - B. Multinucleate cells during embryogenesis
  - C. Several prokaryotic cells amalgamating
  - D. Eukaryotic cell subdivision
  
3. One of the following is a function of epithelial tissue, which one is it?
  - A. Internal support for organs
  - B. Protection from external environment
  - C. Stores nutrients
  - D. Wraps around, cushion and protects organs
  
4. The main function of the connective tissue is.
  - A. Protection from external environment
  - B. Absorption
  - C. Filters the kidney
  - D. Internal support for organs
  
5. Which of the following is an element of connective tissue:
  - A. Brain
  - B. Spinal cord
  - C. Ground substance
  - D. Nerves
  
6. Which of the following is an element of the nervous tissue:
  - A. Fibroblasts
  - B. Fibers
  - C. Ground substance
  - D. Brain
  
7. Which of the following is a type of loose connective tissue:
  - A. Squamous
  - B. Areolar
  - C. Cuboidal
  - D. Columnar
  
8. Which of the following is a type of epithelial tissue
  - A. Reticular
  - B. Adipose
  - C. Squamous
  - D. Columnar

9. The organelle that contains the cell's genetic material is
- Ribosomes on rough ER**
  - Peroxisomes**
  - Lysosomes**
  - Nucleus**
10. The mitochondrion is surrounded by \_\_\_\_\_ membranes
- One**
  - Two**
  - Three**
  - Four**
11. Which of the following statements takes place at the G1 phase of the cell cycle?
- The cell grows and proteins required for cell division are synthesized**
  - Nuclear membrane disintegrates**
  - The cell remains in a stable state of same size**
  - Chromosomes are aligned in a single plane**
12. One of the following statements is TRUE about S phase of cell cycle, which one is it?
- It lasts for about 9 hours**
  - The chromosomes duplicate**
  - Cells must proceed to mitosis even if DNA is not synthesized at this phase**
  - After S phase each chromosome is composed of one chromatid**
13. The cells that secrete the ground substance and fibers in connective tissues are known as:
- Macrophages**
  - Lymphoblasts**
  - Fibroblasts**
  - Glial cells**
14. The prometaphase is marked by:
- The spindle microtubules exit the nuclear region**
  - Chromosomes condense**
  - The ends of certain microtubules make contact with the chromosome**
  - The chromosomes arrange themselves in single plane**
15. The organelle responsible for the synthesis of lipid and steroids is:
- Peroxisome**
  - Mitochondrion**
  - Rough endoplasmic reticulum**
  - Smooth endoplasmic reticulum**
16. Pinocytosis is the process of:
- Internalizing particles by a cells**
  - Particles leave the cell**
  - Internalization of extracellular fluid**
  - Fluid leaves the cell**

17. Which of the following is a stage of prophase I?
- Cytokinesis
  - Interkinesis
  - Chromotene
  - Diplotene
18. A group of cells from a common progenitor and performing a specialized function is called?
- Organ
  - Tissue
  - Organ system
  - Gland
19. Skeletal muscle cells are multinucleated because:
- Fibers fuse during embryogenesis pooling their nuclei
  - Arrested cell division
  - Hyperplasia
  - Dysplasia
20. Cells of the pancreas contain many \_\_\_\_\_ because they synthesize many digestive enzymes:
- Lysosomes
  - Secretory vesicles
  - Centrioles
  - Vacuoles

**Short Answer Questions (SAQs)****(40 Marks)**

1. Explain the functions and characteristics of epithelial tissue [8 Marks]
2. Describe the structure and functions of mitochondria [8 marks]
3. Define the term active transport and its importance transport [8 Marks]
4. Describe the structure and function of rough endoplasmic reticulum [8 marks]
5. Name differences between a plant and animal cell [8 Marks]

**Long Answer Questions (LAQs)****40 Marks**

1. Describe the adaptation of cells to various conditions [20 marks]
2. Discuss the processes of oogenesis and spermatogenesis [20 Marks]