



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICAL LABORATORY SCIENCES
BMLS 13S REGULAR

AML 4105 : HUMAN PHYSIOLOGY I

SEMESTER EXAMINATION

APRIL 2014 SERIES

2 HOURS

Instructions to candidates:

This paper consists of **TWO** sections **A** and **B**

Section A -Contains MCQS, Answer **ALL** questions in **Section B**.

SECTION A - MCQs - (30marks)

1. Which of the following event occur during telephase
 - a) Cytokines is
 - b) Chromosome separation
 - c) Nuclear membrane disintegration
 - d) Attachment of centromeres
 - e) Movement of centromeres to opposite poles
2. The cell membrane is composed of
 - a) Lipoprotein layer
 - b) Trilipid layer
 - c) Bilipid layer
 - d) Monophospholipid layer
 - e) Glucose layer
3. The following organelle is responsible for separation of chromosomes at chiasma during meiosis

- a) Golgi apparatus
 - b) Centrioles
 - c) Ribosomes
 - d) Mitochondria
 - e) Peroxisomes
4. What of the following is a site of energy production in a cell
- a) Cell membrane
 - b) Ribosomes
 - c) Mitochondria
 - d) Nucleus
 - e) Golgi apparatus
5. Which of the following is not a type of epithelial tissue
- a) Stratified columnar
 - b) Simple connective tissue
 - c) Stratified squamous
 - d) Keratinized columnar
6. Which one of the following tissue is found in the kidney tubules
- a) Stratified columnar
 - b) Squamous epithelium
 - c) Simple cuboidal epithelium
 - d) Stratified cuboidal
 - e) Keratinized epithelial
7. Which of the following is not a membranous organelle
- a) Lysosomes
 - b) Mitochondria
 - c) Nucleus
 - d) Centrosomes
 - e) Golgi apparatus
8. Which of the following is not found in the cytoplasm of the cell
- a) Endoplasmic reticulum
 - b) Membranous organelles
 - c) Plasma membrane
 - d) Non-membranous organelles
 - e) Ribosomes
9. Which of the following bears ribosomes on its surface
- a) Mitochondria
 - b) Smooth endoplasmic reticulum
 - c) Rough endoplasmic reticulum
 - d) Lysosomes
 - e) Both b and c

10. Material can leave the cell by the following except
- Simple diffusion
 - Exocytosis
 - Pinocytosis
 - Antiport
 - Both a and b
11. Which of the following is a property of a nerve cell
- Relaxation
 - Elasticity
 - Contractility
 - Extensibility
 - Conductivity
12. Which of the following is considered as the basic unit of life
- Organelle
 - Tissue
 - Organism
 - The cell
 - The organ
13. Which of following happens during the S-phase of cell cycle
- mRNA and protein are produced
 - growth and preparation of chromosome replication
 - Preparation for mitosis
 - DNA replication
 - All of the above
14. Movement across the cell membrane involve which of the process
- Diffusion
 - Osmosis
 - Active transport
 - Filtration
 - All the above
15. Typical osmolarity of human interstitial fluid or blood plasma ranges between
- 200 – 275 mosmoles /l
 - 175 – 275 mosmol/L
 - 275 – 385 mosmoles/l
 - 285 – 310 mosmole/l
 - 300 – 400 mosmol/l
16. Cells will shrink when placed in which of the following solution
- Hypertonic solution
 - Isotonic solution
 - Hypotonic solution
 - Both hypertonic and Isotonic

- e) Both hypotonic and isotonic
17. Which of the following is not characteristic of muscle tissue
- Excitability
 - Contractility
 - Mobility
 - Elasticity
 - Extensibility
18. A muscle that decreases a joint angle when it contracts is called
- Extensor
 - Flexor
 - Adductor
 - Abductor
 - Pronator
19. Which of the following statement is true
- Sodium (Na⁺) is more Concentrated in the extra cellular than intracellular space
 - Sodium (Na⁺) is more concentrated in the intracellular space then extracellular space
 - Potassium is more concentrated in both intracellular and extracellular space
 - Potassium is more concentrated in the extracellular space
 - Sodium is more concentrated in both intracellular and extracellular space
20. Which of the following is not true about a muscle fiber
- Is a single muscle cell
 - Functional unit of muscle
 - Fibers run perpendicular to each other
 - Cylinder less than 1/10mm diameter and upto ½ meter long
 - None of the above.
21. Which one is not true about a neurone
- Is basic functional unit of the nervous system
 - Can divide by mitosis
 - Respond to physical and chemical stimuli
 - Produce and conduct electronic impulses
 - Release chemical regulators
22. Neuroglia are supporting cells of the nervous system, which one is not true
- Segregate and insulate neurons
 - Guide young neurons to proper conception
 - Promote health and growth
 - Provide supportive scaffolding for neurons
 - Play no role in health and growth
23. Which of the following is not a central nervous system neuroglia
- Astrocytes
 - Oligodendrocytes
 - Microglia cells

- d) Ependymall cells
 - e) Sylvain cells
24. Which one of the following is not included in the phases of action potential
- a) Depolarization
 - b) Re polarization
 - c) Threshold potential
 - d) Undershoot
 - e) Both a and b
25. Which of the following cells are involved in bone resorption
- a) Osteoblast
 - b) Osteoclast
 - c) Osteocytes
 - d) Chondroblast
 - e) Fibroblast
26. Which are the two forms of nerve impulse
- a) Hyperpolarization and hypolarization
 - b) Hyperdepolarization and hypodepolarization
 - c) Action potential and graded potential
 - d) Summation and desquamation
 - e) Hyper polarization and depolarization
27. Which one is true about centrosomes
- a) Consist of four centrioles
 - b) They duplicated during the m phase of cell cycle
 - c) Move a part just before mitosis until they are opposite side of nucules
 - d) They triplicate during the S pahse of cell cycle
 - e) Microtubules do not grow from the ceutrosome
28. Which one is not true about the cytoplasm of a muscle cell
- a) Its also called sarcoplasm
 - b) Contains abundant, parallel threadlike structure called myofibril
 - c) Consists of a single nuclei
 - d) Contains many mitochondria
 - e) The nuclei are many small and oval like
29. Which one of the following is not considered in naming of muscle
- a) Attachment to the bone
 - b) Direction of muscle fiber
 - c) Shape of the muscle
 - d) Position of the muscle in the body
 - e) Amount of energy used in contraction
30. Bulk transport across cell membrane includes the following except
- a) Phagocytosis
 - b) Endocytosis

- c) Cytitis
- d) Pinocytosis
- e) Exocytosis

SECTION B ESSAY
(ANSWER ALL QUESTION IN THIS SECTION)

1. (a) Describe the mechanism of muscle contraction **(16marks)**
(b) Name the different types of patterns of muscle contraction **(4marks)**
2. (a) Give brief description of the process of cell division (mitosis) **(10marks)**
(b) What are the differences between mitosis and mitosis **(10marks)**