



Technical University of Mombasa

Faculty of Applied and Health Sciences

DEPARTMENT OF **MEDICAL SCIENCES**

DIPLOMA IN PHARMACEUTICAL TECHNOLOGY

DPT 13M

AML 2148 : MEDICAL PHYSIOLOGY I

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: OCTOBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this examination

- *Answer booklet*

This paper consists of **THREE sections A, B and C.**

Section A : Multiple Answer Questions Answer All

Section B. Short Essay Questions. Answer ALL

Section C has FOUR essay Questions Answer THREE questions

This paper consists of **8 PRINTED** pages

SECTION A (40MARKS)

1. The following are stages in the cell cycle except
 - a) G1
 - b) G0
 - c) G3
 - d) G2

2. The following phases are found in the mitosis process except the
 - a) Metaphase
 - b) Telophase
 - c) Anaphase
 - d) Phase

3. In early prophase
 - a) the nucleolus shrinks & disappears
 - b) the centrosomes move to opposite ends
 - c) there division of nucleus
 - d) Spindle reach the opposite ends the nuclear pole

4. Homeostasis refers to
 - a) Stoppage of muscular movement
 - b) Blood clotting in vessels
 - c) Maintaining the body's internal
 - d) The ultrafiltration in formation of ECF

5. For any physiological feedback the following must be present except:-
 - a) Receptors to detect change
 - b) Lymph vessels for drainage of lymph
 - c) Control mechanism to process the information
 - d) Effectors tissues or organs

6. The following are some of the functions of epithelial tissues except :
 - a) Absorption
 - b) Transmission of impulses
 - c) Secretion
 - d) Protection of underlying tissues

7. Macrophages are involved in:-
 - a) Formation of antibodies
 - b) Formation of collagen relastic fibres
 - c) Dense
 - d) Insulation

8. The functions of connective tissues includes the following except :
 - a) Structural support
 - b) Transport
 - c) Insulation

- d) Absorption of substances
9. The areolar tissue is found in
- Under the skin
 - The walls of blood vessels
 - Within tendons
 - The bone tissues
10. In the maintenance of the plasma osmolarity
- Increase in water intake
 - Urine retention
 - Increased glucose formation
 - Increased vasopressin production
11. The type of bone cells involved in bone resorption to maintain optimum shape is
- Osteoblast
 - Osteocytes
 - Osteoclasts
 - None of the above
12. Cell bulk transport includes the following except :-
- Endocytosis
 - Cystitis
 - Pinocytosis
 - Exocytosis
13. Lymphoid tissue is found in the following except in
- Spleen
 - Adipose
 - Appendix
 - Tonsils
14. One of the following is a type of cartilage
- Dense connective tissue
 - Adipose
 - Elastic
 - Hyaline
15. The Na^+K^+ pump is a _____ protein
- Integral
 - Transmembrane
 - A protein
 - Lipoprotein
16. Osmosis is a simple case of
- Simple diffusion
 - Facilitated diffusion
 - Pinocytosis

- d) Carrier mediated transport
17. The contransport of glucose derives energy from
- Na⁺ concentration gradient
 - Ca²⁺ gradient
 - Body heat
 - Membrane voltage
18. Matter can leave a cell by any of the following means except
- Antiport
 - Exocytosis
 - Simple diffusion
 - Pinocytosis
19. _____ is an example of positive feedback mechanism
- Blood sugar control
 - Child birth
 - Body temperature
 - Control of hormone production
20. Factors affecting the rate of diffusion include the following except
- Temperature
 - Osmolality
 - Molecular weight
 - Membrane permeability
21. Which of the following is not a carrier system in membrane transport
- Isotonic
 - Uniport
 - Antiport
 - Symport
22. Which of the following is not a function of NaK pump
- Maintenance of membrane potential
 - Regulation of cell volume
 - Heat production
 - Primary active transport
23. The following is a process in vesicular transport
- Carrier protein
 - Symport
 - Phagocytosis
 - Na⁺ K⁺ pump
24. The following is not a process in mitosis
- Anaphase
 - Pachytene
 - Karyokinesis

- d) Telophase
25. One of the following is not a phase of the cell cycle
- G₀
 - H₃
 - S
 - M
26. Physiology is the study of
- Body structure
 - Body organ location
 - Organ function
 - Tissue location in organs
27. Which of the following is not an organelle
- Peroxisome
 - Hylsosome
 - Lipid droplets
 - Nucleus
28. Which of the following is not a role of a living bone
- Communication
 - Haemopoiesis
 - Mineral storage
 - Protection
29. Which one of the following is an action potential stage
- Rythmicity
 - Depolarization
 - Resisting membrane potential
 - Salutatory
30. When a red blood cell is put in a hypertonic solution is
- Creanates
 - Enlarges
 - Produces daughter cells
 - Retains its size
31. Intravenous infectious are
- Hypertonic
 - Hypotonic
 - Isotonic
 - Atomic
32. The following system is involved in communication within the body except:
- Blood
 - Circulatory
 - Kidney

- d) Lymphatic
33. In active transport substances move
- up their concentration gradient
 - down the concentration gradient
 - along the concentration
 - move passively
34. The following are examples of bulk transport except
- Exocytosis
 - Pinocytosis
 - Phagocytosis
 - Monocytosis
35. Which of the following cells produce collagen fibres
- Macrophages
 - Fibroblast
 - Fibrocytes
 - Chondrocytes
36. One of the following is not a main function of the skull
- Protects the eyes
 - Locomotion
 - Help in chewing food
 - Keep air passages in the nose open
37. The type of epithelium lining the urinary bladder is the ___ epithelium
- Squamous
 - Transitional
 - Stracified aiboidal
 - Ciliated columnar
38. Which organelle is involved with destruction of other organelles
- Lysosomes
 - Polysomes
 - Ribosomes
 - Golgi bodies
39. Lymphoid tissue is found in the following except :
- Spleen
 - Adipose
 - Appendix
 - Tonsils
40. One of the following is not a body covering
- Pericardium
 - Pleura
 - Perineum

d) Peritoneum

SECTION B

(Answer all questions)

41. Differentiate intracellular fluid from extracellular (4marks)
42. With illustration differentiate between symport and antiport (4marks)
43. Differentiate osmosis from simple diffusion (4marks)
44. Outline any FOUR functions of the Na⁺ K⁺ pump (4marks)
45. Distinguish between integral and peripheral proteins (4marks)
46. Describe any TWO types of glandular secretion (4marks)
47. List any FOUR functions of the skin. (4marks)
48. List the FOUR main stages of mitosis (4marks)
49. What are the major differences between mitosis and meiosis (4marks)
50. Describe the human and porcine glands modes of secretions. (4marks)

SECTION C

(Answer any TWO questions)

51. Give the functions of any 10 cell organelles (20marks)
52. (a) Describe any FIVE functions of the skeletal system (10marks)
(b) Briefly describe the homeostatic control mechanism giving one biological example (10marks)
53. With illustration and brief description show the processes under meiosis (20marks)