



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A constituent of JKUAT)

Faculty of Applied and Health Sciences

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICAL
LABORATORY SCIENCES

AML 4240: HUMAN PHYSIOLOGY II

SEMESTER EXAMINATION

DECEMBER 2012 SERIES

2 HOURS

Instructions to candidates:

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

Section A –Contains MCQS, any wrong response will be penalised. Answer **ALL** questions in **Section B**.

SECTION A – MCQs – (30marks)

1. The following organelle produces energy for the cell
 - a) Nucleus
 - b) Plasma lemma
 - c) Mitochondria
 - d) Cristae
2. The kidney Performs the following functions except
 - a) Calcitonin production
 - b) BP control
 - c) pH control
 - d) Water and electrolyte balance

3. The following ion is transported coupled to sodium ion
 - a) Chloride ion
 - b) Potassium
 - c) Calcium
 - d) Glucose

4. The following chemical compound is a universal vasodilator and regulator of arterial resistance
 - a) Atrial natriotic peptide
 - b) Nitric oxide
 - c) Renin
 - d) Sodium chloride

5. One of the following statement is true
 - a) Every cell in the body has a nucleus
 - b) Transitional epithelium is found lining the urinary bladder
 - c) Keratinized stratified epithelium is found on wet surfaces
 - d) All cells have equal number of organelles

6. The following are cells that form the connective tissue except:
 - a) Mast cells
 - b) Fibro blasts
 - c) Melanocytes
 - d) Adipocytes

7. The following organelle plays an important role in separation of chromosomes at chiasm during meiosis
- a) Golgi apparatus
 - b) Ribosome
 - c) Centrosomes
 - d) Centrioles
8. Columnar epithelium is important in production of
- a) Magnesium
 - b) Blood cells
 - c) Mucus
 - d) Sodium chloride
9. One of the statement is true
- a) Plasma albumin is responsible for plasma oncotic pressure.
 - b) Plasma cells are produced by T-lymphocytes
 - c) Urinary bladder is made up of cuboidal cells
 - d) Bone is a fibrous tissue
10. Which of the following protein is produced by the liver
- a) Albumin
 - b) Prothrombin
 - c) Lipoproteins
 - d) Calcitonin

11. The following are the layers that form the brain tissue except
- a) Pia matter
 - b) Dura mater
 - c) Arachnoid
 - d) Sub-dural matter
12. Which of the following is an extracellular cation
- a) Potassium
 - b) Magnesium
 - c) Chloride
 - d) Sodium
13. The following organelles are found in the cytosol except
- a) Nucleus
 - b) Centrioles
 - c) Mitochondria
 - d) Glycoproteins
14. The following enzyme resident in body tissue is essential for conversion of CO₂ to weak carbonic acid.
- a) Renin
 - b) Aldosterase
 - c) Carbonic anhydrase
 - d) Tyrosinase

15. The juxtaglomerular apparatus is responsible for release of
- a) Erythropoetin
 - b) Renin
 - c) Insulin
 - d) Glucagon
16. Mast cells are responsible for secretion of the following intermediaries except
- a) Heparine
 - b) Intrinsic factor
 - c) Serotonin
 - d) Histamine
17. The major work horse cells of the pancrease are the
- a) Alpha cells
 - b) Ductular cells
 - c) Acinar cells
 - d) Oxyntic cells
18. The following is a representation of Laplace law
- a) Diatensibility of alveoli in inversely to its radius
 - b) The pressure in the alveoli is directly proportional to the volume of aim in the alveoli
 - c) The pressure in the alveoli is directly proportional to the surface tension and inversely to the alveoli radius
 - d) None of the above

19. Collection of fluid in the abdominal cavity is termed as
- a) Dedema
 - b) Jaundice
 - c) Ascites
 - d) Portal ancephalopathy
20. Abnormalities in fat metabolism and high levels of circulating low density lipoproteins can cause early atherosclerosis
- a) Nephrotic syndrome
 - b) Mycardial infarction
 - c) Calciuremia
 - d) Stroke
21. The following cells are responsible for spermatogenesis
- a) Levy dig cells
 - b) Sperm cells
 - c) Sertoli cells
 - d) Macula densa
22. Which of the following hormonal agents acts on the segments of renal tubules to absorb sodium ions?
- a) Cortisol
 - b) Aldosterone
 - c) Renin
 - d) Epinephrine
23. The principal cells of the early cortical collecting ducts are rich in
- a) Hydrochloric acid
 - b) Sodium-potassium ATPase
 - c) Carbonic anhydrase
 - d) Sodium ions

24. One of the following substance stimulate gastric secretion

- a) Angiotensinogen
- b) Nitric oxide
- c) Acetylchlorine
- d) Serotonin

25. Growth hormone releasing inhibiting hormone is also known as

- a) Somatomedin C
- b) Somatostatin
- c) Somatomedin
- d) Substance P.

26. Ductular cells secrete the following

- a) Amylase
- b) Sodium hydrogen carbonate
- c) Lipase
- d) Trypsin

27 The following structures found on the cell membrane except

- a) Co-enzyme
- b) Gap junctions
- c) Glycoprotein
- d) Tight junctions

SECTION B – (40marks) Answer ALL questions

1. (a) Discuss the physiology of hearing in man **(10marks)**
(b) Discuss sex differentiation in man **(10marks)**

2. (a) Describe how the small intestine is adapted to its functions. **(10marks)**
(b) Discuss the major membrane transport mechanisms available for substances across the plasma membrane **(10marks)**