

CHUKA



UNIVERSITY

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## UNIVERSITY EXAMINATIONS

### FIRST YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN NURSING (UPGRADING)

NURU 113: MEDICAL PSYCHOLOGY I

STREAMS: BSC (NURS) YITI

TIME: 2 HOURS

DAY/DATE: FRIDAY 09/08/2019

11.30 AM – 1.30 PM

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#### INSTRUCTIONS:

- Do not write anything on the questions paper
- Mobile phones and any other reference materials are NOT allowed in the examination room
- The paper has three Sections. Answer ALL questions in Section I and II and ONE question in Section III
- All your answers for Section 1 (MCQs) should be on one page

#### SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. In a cell, movement of molecules from an area of low concentration to an area of high concentration.
  - (a) Uses facilitated diffusion
  - (b) Requires cellular energy
  - (c) Needs associated (peripheral) proteins
  - (d) Uses its concentration gradient to move
2. All of the following are functions of the proteins in the plasma membrane except:
  - (a) Some proteins are enzymes
  - (b) Most proteins are receptors
  - (c) They are involved in the transport functions
  - (d) They have important role in nuclear division
3. The process of erythropoiesis
  - (a) Requires vitamin B12 and folate
  - (b) Is inhibited by erythropoietin
  - (c) Is stimulated when oxygen decreases in the blood

- (d) Both a and c
4. Diastolic pressure is
- (a) The maximum pressure during ventricular diastole
  - (b) The minimum pressure during ventricular diastole
  - (c) The maximum pressure during atrial diastole
  - (d) The minimum pressure during atrial diastole
5. The following statements are functions of the smooth endoplasmic reticulum except:
- (a) Fat metabolism
  - (b) Synthesis of cholesterol
  - (c) Synthesis of protein
  - (d) Detoxification
6. These leukocytes produce enzymes that reduce the inflammatory response and are associated with allergies and parasitic infections:
- (a) Basophils
  - (b) Eosinophils
  - (c) Lymphocytes
  - (d) Monocytes
7. The following is a cell inclusion:
- (a) Mitochondria
  - (b) Golgi apparatus
  - (c) Pigments
  - (d) All of the above
9. The following is untrue concerning membrane ions:
- (a) Consists mainly of carbohydrate and lipid
  - (b) Have a specific structure for each ion species
  - (c) May be opened by a given change in transmembrane potential
  - (d) Remain open as long as the activating signal is present
10. A 40-year old man has an ejection fraction of 25% and an end systolic volume of 150ml. what is her end diastolic volume?
- (a) 50 ml
  - (b) 100 ml
  - (c) 125 ml
  - (d) 200 ml
11. The following statement is true concerning facilitated diffusion:
- (a) Does not need carrier
  - (b) Needs energy
  - (c) Occurs down the concentration gradient
  - (d) None of the above

12. The blood contained in the ventricles during isovolumetric relaxation is termed:
- (a) The end-systolic volume
  - (b) The end-diastolic volume
  - (c) The stroke volume
  - (d) The ejection fraction
13. All of the following chemical substances decreases heart rate except:
- (a) Digitalis
  - (b) Morphine
  - (c) Acetylcholine
  - (d) Histamine
14. Hematocrit is a measure of:
- (a) The amount of hemoglobin in a given volume of blood
  - (b) The percentage of total blood volume composed of erythrocytes
  - (c) The percentage of total blood volume composed of leukocytes
  - (d) The percentage of total blood volume composed of thrombocytes
15. The following blood cell is a granulocyte?
- (a) A monocyte
  - (b) A lymphocyte
  - (c) A macrophage
  - (d) An eosinophil
16. The cardiac conduction system includes all of the following except
- (a) The Sa node
  - (b) The AV node
  - (c) The bundle branches
  - (d) The chordae tendinae
17. The connection of electrical conduction between the myocardium of atria and that of ventricles is the:
- (a) AV node
  - (b) AV bundle
  - (c) SA node
  - (d) Purkinje fibers
18. On average, the body water for a male adult weighing 70 kilogram's is:
- (a) 42 liters
  - (b) 45 liters
  - (c) 70 liters
  - (d) 56 liters
19. The following is not a component of hemostasis?
- (a) Platelet plug formation
  - (b) Agglutination

- (c) Clot retraction
  - (d) Vascular spasm
20. Which of the following is true concerning the thymus gland:
- (a) It participates in making B cells
  - (b) It participates in making T cells
  - (c) It stops working as you age
  - (d) All of the above are correct

**SECTION B: SHORT ANSWER QUESTIONS (30 MARKS)**

1. Describe how the following transport processes occur across the plasma membrane:
- (a) Facilitated diffusion [3 marks]
  - (b) Secondary active transport [3 marks]
2. Explain the ionic changes that occur during the following phases of the cardiac action potential:
- (a) Depolarization [2 marks]
  - (b) Plateau [2 marks]
  - (c) Repolarization [2 marks]
3. Explain three (3) functions of white blood cells indicting the specific cells involved. [6 marks]
4. Explain how the following physiological changes affect the cardiac activity:
- (a) Release of epinephrine [3 marks]
  - (b) Release of acetylcholine [3 marks]

**SECTION C: LONG ANSWER QUESTIONS (20 MARKS)**

1. Blood pressure is determined by the level of cardiac output and the peripheral resistance. Cardiac output is further influenced by changes in stroke volume and the heart rate:
- (a) Describe the physiological determinants of the stroke volume. [6 marks]
  - (b) Explain the hormonal control of blood pressure. [14 marks]
2. Blood constitutes about 8% of the total body mass in adults:
- (a) Explain the functions of the main constituents of blood plasma. [12 marks]

(b) Describe the physiological mechanisms involved in platelet plug formation. [6 marks]

(c) Explain the role of vitamin K in hemostasis. [4 marks]

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