

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
FIRST YEAR EXAMINATION FOR BACHELOR OF SCIENCE IN NURSING
(UPGRADING)**

NURU 117: MEDICAL PHYSIOLOGY III

STREAMS: Y1T2

TIME: 2 HOURS

DAY/DATE: WEDNESDAY 18/11/2020

8.30 AM – 10.30

INSTRUCTIONS:

1. Do not write anything on the question paper.
2. Mobile phones and any other reference materials are NOT allowed in the examination room.
3. The paper has three sections. Answer ALL questions.
4. All your answers for Section I (MCQs) should be on one page.
5. Number ALL your answers and indicate the order of appearance in the space provided in the cover page of the examination answer booklet.
6. Write your answers legibly and use your time wisely

MCQS (20MKS)

1. Pericardial fluid is found
 - a. In between fibrous pericardium and serous pericardium
 - b. In between parietal pericardium and epicardium
 - c. In between epicardium and endocardium
 - d. In between the right and left atrium
2. Positive chronotropic agents
 - a. Increase the heart rate
 - b. Decrease the heart contractility
 - c. Decrease the heart rate
 - d. Increase the heart contractility
3. If the vagus nerves to the heart are severed
 - a. The heart rate would increase
 - b. The heart rate would decrease

- c. The stroke volume would increase
 - d. The stroke volume would decrease
 - e.
4. Elevated blood levels of Na⁺
- a. Decreases the force of myocardial contraction
 - b. Blocks generation of Action Potentials
 - c. Increase Heart Rate
 - d. Increase the myocardial contractility
5. Cellular respiration entails
- a. Metabolic reactions within cells that consume O₂ and give off CO₂
 - b. Exchange of gases between the alveoli and the blood
 - c. Inhalation and exhalation of air
 - d. Exchange of gases between blood and tissue cells
6. When describing the lung volumes, the vital capacity is
- a. The volume of one breath
 - b. The total volume of air contained in the lungs
 - c. The total volume of exhaled air, from a maximum inspiration to a maximum exhalation
 - d. The residual volume and the expiratory reserve volume
7. In a healthy adult, what percentage of the tidal volume reaches the respiratory zone and therefore participates in external respiration
- a. 25%
 - b. 50%
 - c. 75%
 - d. 100%
8. Carbon dioxide is mainly transported in blood as
- a. Dissolved in plasma
 - b. Carbamino compounds
 - c. Carbonic acid
 - d. Bicarbonate ions
9. Factors that decrease the affinity of Hemoglobin for Oxygen include the following except
- a. Decreased pH
 - b. Increased temperature
 - c. Increased Partial pressure of CO₂
 - d. Decreased level of 2, 3-biphosphoglycerate
10. The PCO₂ in arterial blood is normally
- a. 40 mmHg
 - b. 80mmHg
 - c. 20mmHg
 - d. 120mmHg

11. In regulation of the respiratory center in the brain, the cerebral cortex is concerned with
 - a. Emotional control
 - b. Voluntary control
 - c. Detection of PCO₂ and Hydrogen ions
 - d. Detection of PO₂
12. The following areas are located in the Pons of the brain stem
 - a. The pneumotaxic area and apneustic area
 - b. Inspiratory area and Expiratory area
 - c. The pneumotaxic area and apneustic area
 - d. Inspiratory area and pneumotaxic area
13. An example of Endocrine glands is
 - a. Mammary glands
 - b. Lacrimal glands
 - c. Digestive glands
 - d. Parathyroid glands
14. Neurohormones
 - a. Are released via synapses
 - b. Are secreted directly into the blood stream
 - c. Are secreted by endocrine glands
 - d. Are secreted by exocrine glands
15. Which of the hormones below is inactivated through deamination in the body tissues
 - a. Catecholamines
 - b. Steroid hormones
 - c. Thyroid hormones
 - d. Peptide hormones
16. Adipose cells release a hormone called
 - a. Gastrin
 - b. Erythropoietin
 - c. Renin
 - d. Leptin
17. Parafollicular cells of thyroid gland secrete
 - a. Thyroxine
 - b. Triiodothyronine
 - c. Calcitonin
 - d. Cortisol
18. One of the Adrenal Androgens is
 - a. Androstenedione
 - b. Testosterone
 - c. Estrogen

- d. Progesterone
- 19. Hormones that penetrate the cell membrane and act internally are
 - a) Amines and polypeptides
 - b) Steroids and thyroid hormones
 - c) Thromboxanes and Leukotrienes
 - d) Prostaglandins
- 20. Delta (D) cells of pancreatic islets produce
 - a) Glucagon
 - b) Insulin
 - c) pancreatic polypeptide
 - d) Somatostatin

SHORT ANSWER QUESTIONS (30MKS)

- 1. Decreased compliance of the lungs is a common feature in pulmonary conditions. Explain four (4) possible causes of decreased lung compliance [8 Marks]
- 2. Hormones are classified into 4 groups. State the four (4) groups giving an example in each. [4 Marks]
- 3. Giving examples, differentiate between Autocrines and Paracrines communications. [4Marks]
- 4. Endocrine system effects are multiple. Explain giving two (2) examples. [8 Marks]
- 5. Hypothalamus is a neuroendocrine organ. Explain. [6 Marks]

LONG ANSWER QUESTIONS (20MKS)

- 1. The heart contracts from the intrauterine life until death.
 - i) State four (4) functions of cardiovascular system [4Marks]
 - ii) Explain the two (2) determinants of Cardiac Output. [4Marks]
 - iii) Describe one cardiac cycle. [12Marks]
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