

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE IN NURSING
(UPGRADING)**

NURU 117: MEDICAL PHYSIOLOGY III

STREAMS: BSC NURS Y1T2

DAY/DATE: THURSDAY 07/08/2025

TIME: 2 HOURS

8.30 A.M. – 10.30 A.M

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

SECTION I: MULTIPLE CHOICE QUESTIONS (20MARKS)

1. Which of the hormones below is inactivated through deamination in the body tissues
 - a. Catecholamines
 - b. Steroid hormones
 - c. Thyroid hormones
 - d. Peptide hormones
2. Neurohormones are secreted
 - a. Via synapses
 - b. Directly into the blood stream
 - c. By endocrine glands
 - d. By exocrine glands
3. Pericardial fluid is found in between
 - a. Fibrous pericardium and serous pericardium
 - b. Parietal pericardium and epicardium
 - c. Epicardium and endocardium

- d. Right and left atrium
- 4. The effect of positive chronotropic agents is
 - a. To increase the heart rate
 - b. To increase heart contractility
 - c. To decrease the heart rate
 - d. To increase the heart contractility
- 5. What would happen if the vagus nerves to the heart is 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
- 6. 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
- 7. Adipose cells release a hormone called
 - a. Gastrin
 - b. Erythropoietin
 - c. Renin
 - d. Leptin
- 8. Cellular respiration entails
 - a. Metabolic reactions within cells that consume O_2 and give off CO_2
 - 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
- 9. 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
- 10. The percentage of the tidal volume that reaches the respiratory zone and therefore participates in external respiration in a healthy adult is
 - a. 25%
 - b. 50%
 - c. 75%
 - d. 100%

11. It is true that
 - a. Parathyroid gland is both endocrine and exocrine
 - b. Endocrine pancreas secretes gastrin hormone
 - c. Parathyroid gland has both adenohypophysis and neurohypophysis
 - d. Glucagon and norepinephrine are hormones
12. Parafollicular cells of thyroid gland secretes
 - a. Thyroxine
 - b. Triiodothyronine
 - c. Calcitonin
 - d. Cortisol
13. The PCO₂ in arterial blood is normally
 - a. 40 mmHg
 - b. 80mmHg
 - c. 20mmHg
 - d. 120mmHg
14. 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
15. The following areas control the basic rhythm of respiration
 - 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
16. One of the Adrenal Androgens is
 - a. Androstenedione
 - b. Testosterone
 - c. Estrogen
 - d. Progesterone
17. The following hormones penetrate the cell membrane and act internally
 - a) Amines and polypeptides
 - b) Steroids and thyroid hormones
 - c) Thromboxanes and Leukotrienes
 - d) Prostaglandins
18. Delta (D) cells of pancreatic islets produce
 - a) Glucagon
 - b) Insulin
 - c) pancreatic polypeptide
 - d) Somatostatin

19. Factors that decrease the affinity of Hemoglobin for Oxygen include the following except
- Decreased pH
 - Increased temperature
 - Increased Partial pressure of CO₂
 - Decreased level of 2, 3-biphosphoglycerate
20. Which one is an Endocrine glands
- Mammary glands
 - Lacrimal glands
 - Digestive glands
 - Parathyroid glands

SECTION II: SHORT ANSWER QUESTIONS (30Marks)

- Describe the three main forms in which carbon dioxide is transported in blood (6Marks)
- Explain four (4) possible causes of decreased lung compliance (8Marks)
- State the four (4) groups of hormones giving an example in each (8Marks)
- Endocrine system effects are multiple. Explain giving two (2) examples (8Marks)

SECTION III: LONG ANSWER QUESTIONS (20Marks)

The primary function of the heart is to pump blood. With the help of a diagram, describe how blood flows through the heart (20 Marks)
