

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:

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**

PART I: MULTIPLE CHOICE QUESTIONS (20mks)

1. Which hormone is derived from two iodinated tyrosine amino acids
 - a. Thyroid hormones
 - b. Thyroid releasing hormones
 - c. Growth hormone

- d. Follicle stimulating hormone
- 2. Some steroids serve as precursors for the production of other hormones. Which hormone is converted to aldosterone, cortisol and androgens in adrenal cortex
 - a. Progesterone
 - b. Testosterone
 - c. Luteinizing hormone
 - d. Follicle Stimulating Hormone
- 3. Which hormone undergoes deamination in the body tissues
 - a. Catecholamines
 - b. Steroids
 - c. Thyroid hormones
 - d. Eicosanoids
- 4. 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
- 5. Is not a true gland
 - a. Thymus
 - b. Posterior pituitary gland
 - c. Parathyroid gland
 - d. Adenohypophysis
- 6. Calcitriol hormone
 - a. Increases the rate of calcium, phosphate and magnesium absorption from the GIT
 - b. Increases the rate of calcium, phosphate and magnesium excretion through kidneys

- c. Inhibits the rate of calcium, phosphate and magnesium absorption from the GIT
 - d. Inhibits the rate of calcium, phosphate and magnesium excretion through kidneys
7. Which one is not a passive process
- a. Inhalation
 - b. Internal respiration
 - c. Exhalation
 - d. External respiration
8. In Oxygen–hemoglobin Dissociation Curve, the following shifts curve to the left except
- a. Acidity
 - b. Fever
 - c. High PCO₂
 - d. Low levels of 2, 3-biphosphoglycerate in blood
9. In regards to Chemoreceptor Regulation of Respiration, the following is not true about Peripheral chemoreceptors
- a. Located in the aortic bodies
 - b. Located also in the carotid bodies
 - c. Located in the medulla oblongata
 - d. Located in the neck
10. Parafollicular cells of thyroid gland secretes
- a. Thyroxine
 - b. Triiodothyronine
 - c. Calcitonin
 - d. Cortisol
11. One of the Adrenal Androgens is
- a. Androstenedione
 - b. Testosterone
 - c. Estrogen

- d. Progesterone
12. 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
13. Delta (D) cells of pancreatic islets produce
- a) Glucagon
 - b) Insulin
 - c) pancreatic polypeptide
 - d) Somatostatin
14. The PCO₂ in arterial blood is
- a. 40 mmHg
 - b. 80 mmHg
 - c. 60 mmHg
 - d. 20 mmHg
15. In comparison with type I pneumocytes, type II pneumocytes are
- a. More numerous
 - b. Possess flattened processes
 - c. Produce surfactant
 - d. Thinner
16. Internal respiration is
- a. Inhalation and exhalation of air
 - b. Metabolic reactions within cells that consume O₂ and give off CO₂ during the ATP production
 - c. Exchange of gases between blood in systemic capillaries and tissue cells.

- d. Exchange of gases between the alveoli and the blood in pulmonary capillaries
17. Causes of decreased lung compliance includes the following except
- a. Scar lung tissue
 - b. Pulmonary edema
 - c. Presence of surfactant
 - d. Paralysis of the intercostal muscles
18. Functional residual capacity is composed of
- a. Residual volume and the expiratory reserve volume
 - b. Residual volume and the tidal volume
 - c. Tidal volume and the expiratory reserve volume
 - d. Vital capacity and the expiratory reserve volume
19. In a spirogram, inhalation is recorded as
- a. Upward deflection
 - b. Downward deflection
 - c. Horizontal line
 - d. Vertical line
20. 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

PART II: SHORT ANSWER QUESTIONS (30mks)

1. Explain the mode of action of the steroid hormones (5mks)
2. Compare endocrine glands with exocrine glands (5mks)

3. Hypothalamus is considered the mother gland. Explain (5mks)
4. Describe the respiratory membrane (5mks)
5. Describe the three main forms in which carbon dioxide is transported in blood (6mks)
6. The medullary rhythmicity area of the respiratory center in brain has both pneumotaxic and apneustic areas. Explain the effect of each area (4mks)

PART III: LONG ANSWER QUESTIONS (20mks)

1. Adrenal gland has two segments namely adrenal cortex and adrenal medulla. Explain the hormones of adrenal gland in terms of regulation of their secretion and their effects on their target cells/organs (20mks)