

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

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

**NURU 118: MEDICAL PHYSIOLOGY IV**

**STREAMS: Y1T2**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 12/07/2021**

**2.30 P.M. – 4.30 P.M.**

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**INSTRUCTIONS:**

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

**PART I: MULTIPLE CHOICE QUESTIONS (20 marks)**

1. The rate of renewal of GIT epithelial cells is
  - a. Every 5 to 7 days
  - b. Every 5 to 7 months
  - c. Every 5 to 7 hours
  - d. Every 5 to 7 years
2. The following is true about Juxta-medullary Nephrons
  - a. Constitutes about 80% of all nephrons in a kidney
  - b. They have short loops of Henle
  - c. Their loops of henly receive blood supply from afferent arterioles
  - d. Their renal corpuscles lie deep in the cortex

3. The normal blood osmolarity is
  - a. 300 milliosmoles per kilogram of blood
  - b. 300 milliosmoles per liter of blood
  - c. 500 milliosmoles per kilogram of blood
  - d. 500 milliosmoles per liter of blood
4. Regulation of blood pressure within the kidneys is partly a responsibility of
  - a. Renal tubules
  - b. Podocytes
  - c. Juxtaglomerular apparatus
  - d. Vasa recta
5. To produce urine, nephrons and renal tubules perform the following processes except
  - a. Tubular secretion
  - b. Glomerular filtration
  - c. Tubular excretion
  - d. Tubular reabsorption
6. The following is true about Glomerular filtration
  - a. It is promoted by Glomerular Blood Hydrostatic Pressure
  - b. It is promoted by Capsular Hydrostatic Pressure
  - c. It is opposed by Glomerular Blood Hydrostatic Pressure and Blood Colloid Osmotic Pressure
  - d. It is opposed by Capsular Hydrostatic Pressure and Glomerular Blood Hydrostatic Pressure
7. Neural Regulation of Glomerular Filtration Rate mainly involves
  - a. Autonomic nervous system
  - b. Central nervous system
  - c. Somatic nervous system
  - d. Enteric nervous system
8. In the kidneys, glucose is reabsorbed at
  - a. Distal convoluted tubule
  - b. Loop of henle
  - c. Proximal convoluted tubule
  - d. Collecting duct
9. The following hormones affect reabsorption and secretion of solutes at the renal tubules except
  - a. Angiotensin II
  - b. Parathyroid hormone
  - c. Calcitonin
  - d. Atrial natriuretic peptide
10. Fluid leaving the thick ascending limb of the loop of henle is
  - a. Hypo osmotic with respect to plasma
  - b. Hyperosmotic with respect to plasma

- c. Isosmotic with respect to plasma
  - d. Either hypo osmotic or hyperosmotic with respect to plasma
11. In the GIT, mucosa-associated lymphatic tissue is mainly found in
- a. The lamina propria
  - b. The muscularis mucosae
  - c. the muscularis externa
  - d. the submucosa
12. The functions of saliva includes the following except
- a. Aiding in food bolus formation
  - b. Dissolves food chemicals
  - c. Contains enzymes that break down proteins
  - d. Cleanses the mouth
13. Chisel-shaped teeth are for cutting or nipping. They are
- a. Molars
  - b. Premolars
  - c. Incisors
  - d. Canines
14. The stomach is protected from the harsh acidic and enzymatic environment in the following ways except
- a. Epithelial cell replacement
  - b. Presence of mucous coat
  - c. Food propulsion by peristalsis
  - d. Presence of tight junctions

For questions 14 and 15, select below the match of the pancreatic enzyme with what it digests

- a. Starch, protein
  - b. Protein, protein
  - c. Triglycerides, protein
  - d. Triglycerides, starch
15. Pancreatic amylase, Trypsin
16. Chymotrypsin , Elastase
17. Intrinsic salivary glands are
- a. Parotid glands
  - b. Submandibular glands
  - c. Sublingual glands
  - d. Buccal glands
18. The longest part of the digestive tract is
- a. Esophagus

- b. Colon
  - c. Small intestine
  - d. Stomach
19. Most of the water in GIT is reabsorbed in
- a. Stomach
  - b. Small intestines
  - c. Large intestines
  - d. Mouth
20. The neurons of the Enteric Nervous System are arranged into
- a. Myenteric plexus and submucosal plexus
  - b. Sympathetic and parasympathetic
  - c. Central nervous system and peripheral nervous system
  - d. Autonomic nervous system

**PART II: SHORT ANSWER QUESTIONS (30 marks)**

1. Describe four (4) adaptations of the Filtration Membrane in the nephron to its functions. (8 marks)
2. Differentiate between Obligatory Water Reabsorption and Facultative Water Reabsorption in the nephron. (2 marks)
3. In excretion of concentrated urine, explain the two types of countercurrent mechanisms involved in the renal medulla. (8 marks)
4. Some hormones have strong influences on pregnancy. List four (4) such hormones and state one effect of each. (6 marks)
5. Swallowing occurs in three stages. Describe them. (6 marks)

**PART III: LONG ANSWER QUESTION (20 marks)**

1. The female reproductive cycle has four (4) phases. Describe them. (20 marks)
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