



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

UNIVERSITY ORDINARY EXAMINATION

2023/2024 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF

SCIENCE IN NURSING

HNB 122: HUMAN PHYSIOLOGY

DURATION: 3 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer all questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A (30 MARKS): MULTIPLE CHOICE QUESTIONS

1. Which cells are responsible for the secretion of potassium in the collecting ducts.
 - a. Principle cells
 - b. Macula densa
 - c. Endothelial cells
 - d. Epithelial cells
2. The vascular component involved in exchanges with the fluid in the tubular lumen is
 - a. Afferent arteriole
 - b. Efferent arteriole
 - c. Peritubular capillaries
 - d. Vasa Recta
3. As the renal arteries approach the hilum it divides into.
 - a. Interlobular arteries
 - b. Segmental arteries
 - c. Lobar arteries
 - d. Afferent arterioles
4. Which protein makes the thick filament of the myofibril
 - a. Tropomyosin
 - b. Titin
 - c. Myosin
 - d. Nebulin
5. The following are characteristics of rods except
 - a. Visual acuity is low
 - b. Distributed towards the periphery of retina
 - c. The shape is cylindrical
 - d. Respond to colour
6. Receptors for static equilibrium are located on the.
 - a. Macula
 - b. Semi-circular canals
 - c. Vestibule
 - d. Utricles
7. Which organ contributes to the most enzymes and hormones towards digestion
 - a. Liver
 - b. Pancreas
 - c. Duodenum
 - d. Ileum
8. Which sphincter guards the opening of the stomach towards the oesophagus
 - a. Cardiac sphincter
 - b. Pyloric sphincter

- c. Lower esophageal sphincter
 - d. Diaphragm sphincter
9. Which hormones controls the opening of the gall bladder
- a. Cholecystokinin
 - b. Peptidase
 - c. Zymogen
 - d. Trypsin
10. Which of the following hormone is secreted by the posterior pituitary gland?
- a. Prolactin
 - b. Antidiuretic hormone
 - c. Leutenising hormone
 - d. Aldosterone
11. The largest cranian nerve with motor functions is called
- a. Trochlear
 - b. Trigeminals
 - c. Oculomotor
 - d. Abducens
12. Insulin is secreted by which cells.
- a. Beta cells
 - b. Acini cells
 - c. Satoli cells
 - d. Alfa cells
13. Chewing reflex is
- a. Voluntary
 - b. Involuntary
 - c. Coordinated
 - d. Non coordinated
14. Mictulation reflex is?
- a. Voluntary
 - b. Involuntary
 - c. Co-ordinated
 - d. Both A and B
15. The pancreatic exocrine cell secretes all the following except?
- a. Insulin
 - b. Peptide
 - c. Lipase
 - d. Amylases
16. Normal gromelura filtration rate is
- a. 120 mls/min
 - b. 125ms1/min

- c. 130ms/min
 - d. 135ms/min
17. Elevated sodium in the blood is
- a. Hyperkalemia
 - b. Hyper natremia
 - c. Hyper sodium
 - d. Hypertension
18. The colour of the skin is affected by the following except
- a. Melanin
 - b. Haemoglobin
 - c. Jaundice
 - d. Bile pigment
19. Ingestion involves all the following except
- a. Mastication
 - b. Deglutition
 - c. Placing food in the mouth
 - d. None of the above
20. What amount of heat is lost through the skin?
- a. 20%
 - b. 80%
 - c. 60%
 - d. 40%

SECTION B (50 MARKS): SHORT ANSWER QUESTIONS

1. Explain 5 factors that affect molecular emptying of the glomerular filtrate. (5 marks)
2. Explain 5 effects of hormones produced by the adrenal medulla in the body. (5 marks)
3. Describe 5 movement involved in the digestive systems. (5 marks)
4. Explain the concept of trans-epithelial transport. (5 marks)
5. State five functions of liver. (5 marks)
6. Explain how renin- angiotensin aldosterone systems work. (5 marks)
7. Describe the physiology of micturition. (5 marks)
8. Explain 2 types of diabetes mellites. (5 marks)
9. Describe the physiology of swallowing. (5 marks)
10. Briefly explain how bile is formed and excreted. (5 marks)

SECTION C (30 MARKS): LONG ANSWER QUESTIONS

1. Describe urine formation process. (15 marks)
2. Explain the physiological function of the skin, using a well labeled diagram. (15 marks)