



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2023/2024

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF SCIENCE IN MEDICAL LABORATORY

HML 3122: HUMAN PHYSIOLOGY II

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS:

- (i) The paper consists of **Three** Sections
 - (ii) Section A: Multiple Choice Questions
 - (iii) Section B: Short Answer Questions
 - (iv) Section C: Long Answer Questions
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SECTION A: MCQS (20 MARKS)

1. Aldosterone is secreted by
 - a) Juxtaglomerular cells
 - b) Macula densa
 - c) Adrenal medulla
 - d) Adrenal cortex
2. ADH will be released from the posterior pituitary when there is a decrease in
 - a) Plasma volume
 - b) Plasma pH
 - c) Plasma K⁺ level
 - d) Plasma Na⁺ level
3. Blood flow to the brain is mainly determined by

- a) PCO₂
 - b) pH
 - c) PO₂
 - d) Temperature
4. The functions of saliva include the following: Except:
- a) Cleaning the mouth
 - b) Killing bacteria
 - c) Digestion of proteins
 - d) Digestion of lipids
5. The stomach lining contains several types of cells. Which statement about them is correct?
- a. mucous cells secrete the glycoprotein Mucin
 - b. Chief cells secrete the hormone gastrin (which stimulates acid secretion.
 - c. Parietal cells secrete pepsinogen, the inactive precursor of pepsin
 - d. G Cells secrete hydrochloric acid
6. Amylase secreted by the salivary glands into the oral cavity starts the digestion of:
- a) Proteins
 - b) Lipids
 - c) Starch
 - d) Amino acids
7. Where does the production of bile occur?
- a) Gallbladder
 - b) Liver
 - c) Pancreas
 - d) Hepatic duct
8. Intrinsic factor is required for the intestinal absorption of
- a) Vitamin D
 - b) Amino Acid
 - c) Vitamin B₁₂
 - d) Vitamin A

9. The role of Chief cell is to:
- a) Secretes hydrogen ions and chloride ions into lumen and are responsible for maintaining the acidic pH
 - b) Secrete pepsin which digests proteins
 - c) Secretes Gastrin which stimulates gastric acid secretion
 - d) Secretes pepsinogen
10. Function of Kidney is to;
- a) Help regulate blood volume.
 - b) Help control blood pressure.
 - c) Help control PH.
 - d) All of the above are correct.
11. The functional unit of the kidney is called a
- a) Glomerulus.
 - b) Nephron.
 - c) Corpuscle.
 - d) Calyx.
12. Ultrafiltration by the glomerulus is enhanced by:
- a) large surface area of the capillaries
 - b) large numbers of glomeruli
 - c) thin semipermeable barrier
 - d) all of the above
13. The primary function of the ascending loop of Henle in the kidney is?
- a) The active re-absorption of sodium
 - b) The active re-absorption of chloride ions
 - c) The passive re-absorption of potassium
 - d) The passive re-absorption of urea
14. ADH has which of the following effects on the distal convoluted tubule?
- a) Decrease water re-absorption

- b) Increase water re-absorption
 - c) Decrease the concentration of urine
 - d) Increase the urine volume
15. The release of Angiotension II causes which of the following to occur?
- a) Increased filtration rate
 - b) Decreased glomerular hydrostatic pressure
 - c) Increase synthesis of Vitamin E
 - d) Increased release of erythropoietin
16. Melatonin is produced by the
- a) posterior pituitary
 - b) anterior pituitary
 - c) hypothalamus
 - d) pineal
17. The steroid hormone which is produced by a corpus luteum after ovulation is?
- a) Progesterone
 - b) Prolactin
 - c) Testosterone
 - d) Inhibin
 - e) perineum
18. Adrenal cortex releases the following to increase blood pressure.
- a) Glucocorticoids
 - b) Renin
 - c) Aldosterone
 - d) corticosteroids
19. The following area secretes renin into the blood?
- a) Macula densa
 - b) Juxtaglomerular apparatus
 - c) Juxtaglomerular cells
 - d) Cortical nephron
20. The following are not found in the glomerular filtrate?

- a) Glucose
- b) Protein
- c) Uric acid
- d) Creatinine

SECTION B: SHORT ANSWER QUESTIONS (40 MARKS)

- a) State FOUR "functions of cerebral spinal fluid (CSF) (4 marks)
- b) Explain Neural and hormonal mechanisms that regulate the release of gastric juice (6 marks)
- c) State THREE components of the cranial meninges. (3 marks)
- d) State THREE Ç3fthe functions of the hypothalamus (3 marks)
- e) Describe the renin angiotensin aldosterone system. (6 marks)
- f) Explain FOUR Functions of the Liver (8 marks)
- g) Explain FIVE Hormones produced by the Anterior Pituitary (10 marks)

Section C: Essay Questions (40 marks)

- 1. Discuss the digestion and absorption of protein in the body. (20 marks)
- 2. Describe the three renal processes (20 marks)