



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2023/2024 ACADEMIC YEAR

FIRST YEAR SECOND TRIMESTER EXAMINATIONS

(MAIN EXAMINATION)

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN PARAMEDICAL SCIENCE

COURSE CODE: NPP 127

COURSE TITLE: HUMAN PHYSIOLOGY II

DATE: MONDAY 8TH APRIL 2024

TIME: 8:00-11:00 AM

INSTRUCTIONS TO CANDIDATES

Answer all Sections

Sec A: Multiple Choice Questions (MCQ) (20 Marks)

Sec B: Short Answer Questions (SAQ) (40 Marks)

Sec C: Long Answer Questions (LAQ) (40 Marks)

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over.

SECTION A: MULTIPLE CHOICE QUESTIONS

20 MARKS

1. Which of the following structures is responsible for the integration and processing of sensory information?

- A. Axon
- B. Dendrite
- C. Synapse
- D. Interneuron

2. The protective layers surrounding the brain and spinal cord are collectively known as:

- A. Synapses
- B. Meninges
- C. Neurons
- D. Myelin sheath

3. Which part of the brain is responsible for regulating basic life functions such as heartbeat and breathing?

- A. Cerebrum
- B. Cerebellum
- C. Medulla oblongata
- D. Hypothalamus

4. What is the primary role of the spinal cord in the CNS?

- A) Integration of sensory information
- B) Regulation of motor output
- C) Control of emotions
- D) Production of cerebrospinal fluid

5. Which part of the brain is responsible for coordinating voluntary movements and maintaining balance and posture?

- A) Cerebrum
- B) Cerebellum
- C) Brainstem
- D) Thalamus

6. Which of the following substances is NOT normally found in urine?

- A) Glucose
- B) Urea
- C) Creatinine
- D) Albumin

7. Which hormone regulates water reabsorption in the kidneys?

- A) Aldosterone

- B) Antidiuretic hormone (ADH)
 - C) Renin
 - D) Angiotensin II
8. What is the functional unit of the kidney responsible for filtration, reabsorption, and secretion?
- A) Nephron
 - B) Glomerulus
 - C) Renal tubule
 - D) Loop of Henle
9. What is the role of antidiuretic hormone (ADH) in the urinary system?
- A) Promotes water reabsorption in the kidneys
 - B) Inhibits water reabsorption in the kidneys
 - C) Stimulates urine production
 - D) Increases sodium excretion
10. Which of the following substances is normally found in urine?
- A) Glucose
 - B) Red blood cells
 - C) Proteins
 - D) Urea
11. The menstrual cycle is primarily regulated by fluctuations in the levels of which hormones?
- A) Estrogen and progesterone
 - B) Testosterone and estrogen
 - C) Luteinizing hormone (LH) and follicle-stimulating hormone (FSH)
 - D) Progesterone and luteinizing hormone (LH)
12. Which gland produces seminal fluid, a component of semen?
- A) Prostate gland
 - B) Cowper's gland (Bulbourethral gland)
 - C) Seminal vesicles
 - D) Epididymis
13. What is the name of the structure that connects the developing fetus to the placenta for nutrient exchange and waste removal?
- A) Umbilical cord
 - B) Amniotic sac
 - C) Chorion
 - D) Placental membrane
14. Where does fertilization typically occur in the female reproductive system?
- A) Uterus
 - B) Cervix

- C) Fallopian tube
- D) Vagina

15. Which of the following structures is responsible for the production and secretion of testosterone in males?

- A) Seminiferous tubules
- B) Epididymis
- C) Leydig cells
- D) Prostate gland

16. Ovulation is triggered by a surge in the secretion of which hormone?

- A) Luteinizing hormone (LH)
- B) Follicle-stimulating hormone (FSH)
- C) Estrogen
- D) Progesterone

17. Sperm production occurs in which structure of the male reproductive system?

- A) Epididymis
- B) Seminal vesicles
- C) Vas deferens
- D) Testes

18. What is the purpose of the menstrual cycle in females?

- A) Fertilization of eggs
- B) Egg production
- C) Preparation of the uterus for pregnancy
- D) Menstrual flow

19. What is the primary function of the epididymis in the male reproductive system?

- A) Sperm storage and maturation
- B) Testosterone production
- C) Ejaculation
- D) Sperm transport

20. Which of the following is NOT a function of the hypothalamus?

- A. Regulation of body temperature
- B. Control of hunger and thirst
- C. Regulation of sleep-wake cycles
- D. Processing of sensory information**

SECTION B: SHORT ANSWER QUESTIONS**40 MARKS**

1. Explain the phases of normal human sexual response 8 marks
2. Explain the physiological roles of Sertoli cells 8 mark
3. Explain the primary effects of LH and FSH on gonads 8 marks
4. Giving examples explain how neurons are classified 8 mark
5. Explain the physical characteristics of a normal urine 8 mark

SECTION C: LONG ANSWER QUESTIONS**40 MARK**

1. Elaborate the physiological functions of a human kidney nephron 20 marks
2. Frontal lobe of the cerebrum plays a key role in higher levels of thinking. Discuss 20 marks

