



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

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**FIRST YEAR SECOND TRIMESTER EXAMINATIONS
FOR THE DEGREE OF
BACHELOR OF SCIENCE IN MIDWIFERY (UPGRADING)**

COURSE CODE: NMM 126

COURSE TITLE: HUMAN PHYSIOLOGY II

DATE: TUESDAY 19/ APRIL/2022

TIME: 3PM – 6PM

INSTRUCTIONS TO CANDIDATE

- Write your registration no, on every piece of paper used. Do not write your name.
- Read carefully any additional instructions preceding each section.

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 5 Printed Pages. Please Turn Over.

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQS); 20 MARKS
Choose the most appropriate answer which gives you (1 mark)

- Q1. Which of the following is the function of the surfactant factor produced by the alveolar type 2 cells?
- The surfactant mixes with alveolar fluid and lowers the surface tension
 - The surfactant mixes with alveolar fluid and increases the surface tension
 - The surfactant mixes with lung fluid and lowers the surface tension
 - The surfactant mixes with lung fluid and lowers the surface tension
- Q2. The following statements are true about the mechanics of breathing EXCEPT
- Pressure is caused by gas molecules striking the walls of a container
 - In a larger volume, the gas molecules strike the wall less frequently, thus exerting less pressure
 - In a smaller sphere the molecules strike the walls less frequently, thus exerting less pressure
 - The pressure of a gas is inversely proportional to the volume of its container
- Q3. In regulation of respiration,
- The central chemoreceptors in medulla senses changes in PO₂ and H⁺ levels
 - Peripheral chemoreceptors in aortic and carotid bodies senses changes in PCO₂ level
 - The central chemoreceptors in medulla senses changes in alveolar fluid levels
 - Peripheral chemoreceptors in aortic and carotid bodies senses changes in PO₂
- Q4. Poor alveolar ventilation results in,
- Low oxygen and high carbon dioxide levels in the alveoli
 - High oxygen and low carbon dioxide levels in the alveoli
 - Low oxygen and low carbon dioxide levels in the alveoli
 - High oxygen and high carbon dioxide levels in the alveoli
- Q5. Ischemic (stagnant) hypoxia,
- Reflects poor O₂ delivery resulting from too few RBCs or from RBCs that contain abnormal or too little Hb.
 - Results when blood circulation is impaired or blocked
 - Occurs when body cells are unable to use O₂ even though adequate amounts are delivered.
 - Is indicated by reduced arterial PO₂
- Q6. The following statements are true of carbon monoxide poisoning EXCEPT?
- The victim is confused and has a throbbing headache
 - Is treated with 100% Oxygen or Hyperbaric therapy if available until carbon monoxide is cleared from the body
 - In rare cases, fair skin becomes cherry red
 - The patient is cyanosed and has respiratory distress
- Q7. Control/Regulation of the rhythm and rate of breathing is at the respiratory center located in the,
- Cerebrum
 - Midbrain

- c. Pons and the medulla
 - d. All the above
- Q8. In comparison to the cones, the rods are more
- a. concentrated in the fovea region
 - b. Sensitive to dim light
 - c. important for colour vision
 - d. sensitive to detail
- Q9. The order in which sound travels through the auditory system is
- a. external auditory meatus, tympanic membrane, round window, scala tympani, scala vestibuli, oval window
 - b. external auditory meatus, tympanic membrane, ossicles, oval window, scala tympani, scala media, round window
 - c. external auditory meatus, tympanic membrane, ossicles, round window, scala vestibuli, scala tympani, oval window
 - d. external auditory meatus, tympanic membrane, ossicles, oval window, scala vestibuli, scala tympani, round window
- Q10. The receptor cells serving taste
- a. Are stimulated when chemicals diffuse through the overlying epithelium to reach them.
 - b. Are primary sensory neurones.
 - c. For sweetness are more common at the tip than at the back of the tongue
 - d. Are histologically different for the four primary taste modalities
- Q11. Which of the following parts of the brain controls the body temperature and urge of eating?
- a. thalamus
 - b. cerebellum
 - c. pons
 - d. hypothalamus
- Q12. When a person goes outdoors into a cold environment:
- a. heat loss is limited and heat-loss responses are activated
 - b. the rate of sweat production increases
 - c. the thermoregulatory centre in the hypothalamus is inhibited
 - d. blood flow to the skin increases
- Q13. Which of the following is most important in determining skin coloration?
- a. Melanin
 - b. Collagen
 - c. Hemoglobin
 - d. Carotene
- Q14. Broca's area is located in.....and is responsible for
- a. the frontal lobe, Motor speech
 - b. the parietal lobe, sensory reception of speech

- c. the temporal lobe, Motor speech
- d. the occipital lobe, sensory reception of speech

Q15. Pain is to _____ as cold is to _____

- a. nociceptors; thermoreceptors
- b. baroreceptors; chemoreceptors
- c. baroreceptors; nociceptors
- d. chemoreceptors; nociceptors

Q16. The sensory system is involved in all the following, EXCEPT :-

- a. initiation of reflex movements
- b. initiation of voluntary movements
- c. learning processes
- d. initiation of emotional response

Q17. What is the part of the tongue that receive bitter taste?

- a. Margins of tongue
- b. back of tongue.
- c. tongue tip
- d. All the tongue.

Q18. The sensory system is involved in all the following, EXCEPT :-

- a. initiation of reflex movements
- b. initiation of voluntary movements
- c. learning processes
- d. initiation of emotional response

Q19. The function of the gastrointestinal tract can be classified in several ways. Which of the following functions is most important for survival immediately after a meal?

- a. Absorption and retention of water and electrolytes
- b. Elimination of toxins
- c. Maintenance of barrier function
- d. Extraction of maximum value from nutrients

Q20. Which of the following characterizes carbohydrate digestion?

- a. It begins when food comes in contact with gastric juice
- b. It begins when the food comes in contact with saliva
- c. It begins with when food comes in contact with pancreatic secretions
- d. It ends when starch has been converted to maltose

SECTION B: SHORT ANSWER QUESTIONS (SAQS); 40 MARKS

Q1. State the eight (8) functions of the cerebral spinal fluid (CSF) (8 Marks)

Q2. Outline eight (8) courses of poor digestion (8 marks)

Q3. Explain four (4) functions of the digestive system (8 marks)

Q4. Explain four (4) functions of the skin (8 marks)

Q5. Explain four (4) functions of the skin (8 marks)

SECTION C: LONG ESSAY QUESTIONS (LEQS); 40 MARKS

Q1. Sympathetic Nervous System prepares the body for 'Fight or Flight'. Discuss therefore the activities of the sympathetic nervous system on different parts of the body during a stressful situation (20 Marks)

Q2. Regarding the respiratory system;

a. State six (6) lung capacities/volumes (6 marks)

b. Describe six (6) functions of the respiratory system (14 marks)

End