



(UNIVERSITY OF CHOICE)

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

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FIRST YEAR, FIRST TRIMESTER EXAMINATIONS

FOR THE DEGREE

OF

BACHELOR OF SCIENCE IN HEALTH PROFESSIONS EDUCATION

COURSE CODE: NUR 105

COURSE TITLE: MEDICAL PHYSIOLOGY I

DATE: THURSDAY 18TH DECEMBER, 2014 TIME: 9.00AM-12.00PM

INSTRUCTIONS TO CANDIDATES

ANSWER ALL QUESTIONS

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 ¹/₄ Printed Pages. Please Turn Over.

SECTION A: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. Which of the following parts of the brain is responsible for vision?
 - a. The temporal lobe
 - b. The hypothalamus
 - c. The occipital cortex
 - d. The anterior pituitary
2. Which of the following is produced by goblet cells?
 - a. Enzymes
 - b. Hormones
 - c. The active form of Vitamin D
 - d. Mucus
3. Which of the following is the other name for the enzyme ptyalin?
 - a. Salivary lipase
 - b. Salivary protease
 - c. Salivary amylase
 - d. None of the above
4. Which of the following hormones is produced by the anterior pituitary gland?
 - a. Glucagon
 - b. Antidiuretic hormone
 - c. Progesterone
 - d. Luteinizing hormone
5. Which of the following eye conditions is caused by increased intraocular pressure?
 - a. Conjunctivitis
 - b. Retinitis
 - c. Glaucoma
 - d. Astigmatism
6. Which of the following organelles is responsible for protein synthesis?
 - a. The mitochondrion
 - b. The Golgi apparatus
 - c. The smooth endoplasmic reticulum
 - d. The rough endoplasmic reticulum
7. Which of the following events in the electrocardiogram is represented by the QRS complex?
 - a. Ventricular repolarization
 - b. Ventricular depolarization
 - c. Atrial depolarization
 - d. Atrial repolarization
8. A person is brought into a room that is air-conditioned at a temperature of 30 °C. Which of the following events will occur in the person's body for purposes of maintenance of the body temperature homeostatic set- point?
 - a. Vasoconstriction
 - b. Increased body metabolism

- c. Vasodilation
 - d. Piloerection
9. Which of the following is **TRUE** of blood coming to the heart from the lungs?
- a. It has a high partial pressure of carbon dioxide
 - b. It has a high partial pressure of oxygen
 - c. It is deoxygenated
 - d. All of the above
10. Which of the following hormones is responsible for milk let-down during lactation?
- a. Prolactin
 - b. Follicle- stimulating hormone
 - c. Human Chorionic Gonadotropin
 - d. Oxytocin
11. Which of the following parts of the eye bears the greatest responsibility for refraction of light rays resulting in image formation?
- a. The retina
 - b. The iris
 - c. The lens
 - d. The cornea
12. Which of the following sites in the gastrointestinal tract has the lowest pH?
- a. The large intestine
 - b. The small intestine
 - c. The mouth
 - d. The stomach
13. Which of the following is **NOT** a high energy compound in cellular metabolism?
- a. Phosphoenol pyruvate
 - b. GTP
 - c. Lactate
 - d. ATP
14. A boy was involved in an accident that caused damage to his eardrum. What is the name of the condition that results from this injury?
- a. Nerve deafness
 - b. Conduction deafness
 - c. Eardrum deafness
 - d. Ear imbalance
15. Which of the following is an anatomical site for catecholamine production?
- a. The adrenal cortex
 - b. The adrenal medulla
 - c. The ureter
 - d. The renal cortex

16. Which of the following is a result of the parasympathetic stimulation of the heart?
 - a. An increase in the rate of contraction of the heart
 - b. A decrease in the rate of contraction of the heart
 - c. An increase in the force of contraction of the heart
 - d. Increased heart rate
17. Which of the following hormones is **NOT** an androgen?
 - a. 5- Dihydrotestosterone
 - b. Androstenedione
 - c. Dehydroepiandrosterone
 - d. Pregnenediol
18. Where is the anatomical location of the respiratory centre in the brain?
 - a. The cerebral cortex
 - b. The cerebellum
 - c. The medulla oblongata
 - d. The corpus striatum
19. A pediatric patient is diagnosed with a rare disease associated with impaired absorption of calcium from the gut. Which of the following conditions will the patient present with?
 - a. Diabetes insipidus
 - b. Deafness
 - c. Mental retardation
 - d. Skeletal deformities
20. Which blood vessels contribute most significantly to the total peripheral resistance of the vascular system?
 - a. The arteries
 - b. The veins
 - c. The arterioles
 - d. The capillaries

SECTION B: SHORT ESSAY QUESTIONS (40 MARKS). Attempt ALL the Questions.

1. a. Explain the electrical conduction system of the heart. (4 marks)
 b. With the help of a diagram, explain the principal features of the electrocardiogram. (6 marks)
2. Explain the factor that contribute to the increased absorptive surface area in the small intestine. (10 marks)
3. "The pancreas is both an exocrine and an endocrine organ". Discuss the validity of this statement. (10 marks)
4. Explain the process of protein digestion and absorption from the gastrointestinal tract. (10 marks)

SECTION C: LONG ESSAY QUESTIONS (40 MARKS) Attempt any TWO Questions from this Section.

1. Describe the influence of the autonomic nervous system on the cardiovascular system. (20 marks)
2. Describe physiological effects of the gonadotropins on the following:
 - a. The male reproductive system. (10 marks)
 - b. The female reproductive system (10 marks)
3. Describe in detail the functions of blood. (20 marks)