

UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES

SUPPLEMENTARY EXAMINATION

JULY 2014

COURSE CODE: EHM 108

TITLE OF PAPER: PRINCIPLES OF ANATOMY AND PHYSIOLOGY

DURATION: 2 HOURS

MARKS: 75

INSTRUCTIONS

- 1. THIS PAPER CONSISTS OF TWO (2) SECTIONS: SECTION 1 –OBJECTIVE QUESTIONS AND SECTION 2 – ESSAY QUESTIONS.**
- 2. ANSWER ALL QUESTIONS**
- 3. READ QUESTIONS AND INSTRUCTIONS CAREFULLY.**

THIS PAPER IS NOT TO BE OPENED UNTIL THE INVIGILATOR HAS GRANTED PERMISSION.

SECTION 1: OBJECTIVE QUESTIONS

For each question, choose the most appropriate response and write the question number and the corresponding letter in your answer sheet, in **capital letters**, e.g. 26 B. Each correct response carries 1 mark.

1. Which of the following is correct about the anatomy of a motor unit?

- A. Each nerve fibre only supplies one muscle.
- B. One neuron can supply many muscle fibres
- C. Each muscle fibre can receive input from many neurons at the same time
- D. A motor unit is the same as the motor impulse

2. Which of the following is correct about a reflex action?

- i) It is a protective mechanism of the body
 - ii) It involves the hypothalamus only
 - iii) Blinking is an example of it
 - iv) It may not involve the brain
- A. i and ii only
 - B. ii and iii only
 - C. iii and iv only
 - D. i, iii and iv only

3. Which of the following is a component of the peripheral nervous system?

- i) Cranial nerves
 - ii) Spinal nerves
 - iii) Brain stem
 - iv) Cerebellum
- A. i and iii
 - B. i and ii

- C. ii and iii
- D. iii and iv

4. By which of the following processes do muscles obtain energy from food?

- i) Anabolism
- ii) Anaerobic respiration
- iii) Aerobic respiration
- iv) Catabolism

- A. i and ii
- B. i and iii
- C. ii and iii
- D. i and iv

5. The main role of the cerebellum in the body is to -----

- A. To control motor movements
- B. To regulate body temperature
- C. Cognitive functions
- D. Controls hearing

6. Which of the following is **NOT** an endocrine gland?

- A. Growth hormone
- B. Hypothalamus
- C. Pituitary gland
- D. Thyroid gland

7. The primary role of sweat glands is to -----
- A. Regulate volume of water in the body
 - B. Regulate the body temperature
 - C. Lubricate the skin
 - D. Secrete fluid to the kidneys
8. Red blood cells _____.
- A. Have a very long half life
 - B. Do not have nuclei
 - C. Serves as part of the immune system, protecting the body from infection.
 - D. Also known as plasma
9. Which of the following **DOES NOT** influence the flow of blood in the cardiovascular system?
- A. Skeletal muscle contraction
 - B. Cardiac muscle contraction
 - C. Force of gravity
 - D. The weight of the muscles in the body
10. When we immunise babies, we are _____.
- i) Building specific immunity to specific illness
 - ii) Strengthening the innate/nonspecific immunity
 - iii) We are killing bacteria which are out-borne
 - iv) Inoculating a dead virus
- A. i and iii
 - B. i and ii
 - C. ii and iii
 - D. iii and iv

11. The functional unit of a kidney is called the _____.

- A. Cell
- B. Nephron
- C. Motor unit
- D. Sarcomere.

12. Sperms are manufactured by the _____.

- A. Penis
- B. Testis
- C. Bladder
- D. Stomach

13. Which of the following structures is located inferiorly to the heart?

- A. Trachea
- B. Lungs
- C. Diaphragm
- D. Sternum

14. The appendicular skeleton consists of _____.

- i) The upper and lower limbs
- ii) The femur
- iii) The sternum
- iv) Vertebrae

- A. i and ii
- B. i and iii
- C. ii and iii
- D. ii and iv

15. Which of the following structures **DOES NOT** play a role in maintenance of a constant body temperature?

- A. Skin hair
- B. Hypothalamus
- C. Sweat glands
- D. Kidneys

16. Which of the following cell structures has a DNA?

- A. Ribosomes
- B. Golgi apparatus
- C. Mitochondria
- D. Nucleus

17. The main role of potassium ions (K^+) is _____.

- A. Strengthening of bones
- B. Formation of haemoglobin and transport of oxygen
- C. Neuromuscular transmission
- D. Enzyme cofactor

Match each of the following types of muscle tissues with the correct corresponding characteristic(s) e.g. 23 A, B. NOTE: Answers may be **equal or less than four (4)** in each type.

TYPES OF EPITHELIA	CHARACTERISTICS
18. Simple squamous epithelium	A. Contains mucus secreting cells and found in most of the respiratory tract system
19. Simple cuboidal epithelium	B. Found in the male urethra
20. Pseudostratified columnar epithelium	C. Forms the walls of the kidney tubules
21. Stratified columnar epithelium	D. Found in the kidneys and lungs
22. Stratified squamous epithelium	E. Cells are flattened laterally with sparse cytoplasm
	F. Found in areas subjected to wear and tear
	G. Single layer cell with spherical nuclei
	H. Cells rest on basement membrane of epithelium
	I. Gives false impression that several cell layers are present
	J. Has limited distribution in the body
	K. Forms the lining of the urinary organs
	L. Most abundant epithelial cells in the body
	M. Forms the external part of the skin

Total: 30 Marks

SECTION 2

SHORT ESSAY QUESTIONS

Question 1

- A. List with the aid of examples any five (5) criteria used in naming the body muscles (10)
- B. Explain with the aid of examples how the skin maintains a stable body temperature. (10)

Question 2

- A. With the aid of examples describe any six (6) functions of the skin (12)
- B. Describe any four (4) factors affecting the normal breathing activity. (8)
- C. Trace the blood in the heart from the pulmonary circuit to the systemic circuit. (5)

Total: 45 Marks