

UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES
SUPPLEMENTARY EXAMINATION
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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

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

1. The following are components of a lipid bilayer molecule **EXCEPT**:
 - A. Phospholipids
 - B. Cholesterol
 - C. Protease
 - D. Glycolipids
2. Which of the following types of cells changes its shape as organs stretch and collapse?
 - A. Transitional
 - B. Epithelial
 - C. Cardiac
 - D. Skeletal
3. In Marfan syndrome the -----fibers are malformed resulting to disproportionate arms, legs, fingers and toes.
 - A. Mesothelium
 - B. Collagen
 - C. Elastic
 - D. Reticular
4. Cells that carry on phagocytosis and act as scavengers to clear foreign particles from the tissues is called -----
 - A. Macrophages
 - B. Mast cells
 - C. Adipose cells
 - D. Plasma cells
5. Which of the following epidermal cells act as a waterproofing sealant?
 - A. Keratinocytes
 - B. Melanocytes
 - C. Langerhans cells
 - D. Merkel cells
6. A disease resulting from an infestation of mites is called -----
 - A. Wart
 - B. Vitiligo
 - C. Scabies
 - D. Cancer

7. Which one of the following fibers is **NOT** a connective tissue?
- A. Mesothelium
 - B. Collagen
 - C. Elastic
 - D. Reticular
8. The following are classification of epithelial tissue based on cell shape **EXCEPT**:
- A. Cuboidal
 - B. Osseous
 - C. Columnar
 - D. Squamous
9. Which of the following types of epithelia cells have surfaces with cilia and microvilli for secretion or absorption
- A. Transitional
 - B. Columnar
 - C. Cuboidal
 - D. Squamous
10. Diffusion of a solvent such as water through a selectively permeable membrane is -----
- A. Osmosis
 - B. Isotonic
 - C. Hypotonic
 - D. Tonicity
11. A solution that is able to change the shape of the cells' internal water volume is -----
- A. Osmosis
 - B. Isotonic
 - C. Hypotonic
 - D. Tonicity
12. Which of the following diseases is caused by an uncalcified epiphyseal plate in children?
- A. Osteoporosis
 - B. Osteomalacia
 - C. Arthritis
 - D. Rickets

13. Which of the following structures composed of proteins and ribonucleic acid (RNA) and act as a site for ribosome synthesis?
- A. Chromatin
 - B. Cell membrane
 - C. Nuclear envelop
 - D. Nucleolus
14. A birth control method that prevents implantation of an embryo is -----
- A. Condom
 - B. Withdrawal
 - C. Intrauterine contraceptive device (IUCD)
 - D. Spermicide
15. The following are factors influencing the stability of the synovial joints **EXCEPT:**
- A. Ligaments
 - B. Muscle tone
 - C. Muscle mobility
 - D. Articular surfaces
16. Which of the following heart valves are known as atrioventricular valves?
- I. Pulmonary valve
 - II. Mitral valve
 - III. Aortic valve
 - IV. Tricuspid valve
- A. I and II
 - B. I and III
 - C. II and III
 - D. II and IV
17. The smallest blood vessels that connect smallest arterioles and venules are called?
- A. Veins
 - B. Arteries
 - C. Capillaries
 - D. Aorta
18. The following are lymphoid cells that consist of immune system cells **EXCEPT:**
- A. Macrophages
 - B. Red blood cells
 - C. Lymphocytes
 - D. Reticular cells

19. Which of the following digestive organs is a passage way for food travelling from the oral cavity to the esophagus?

- A. Mouth
- B. Trachea
- C. Pharynx
- D. Larynx

20. Which of the following types of blood cells are crucial for body's defenses against diseases?

- A. Leukocytes
- B. Erythrocytes
- C. Platelets
- D. Fibrin

Match each of the following organelles with the correct corresponding characteristic e.g

16.A. NOTE: There is only one (1) answer for each question.

Organelle	Characteristic
21. Lysosome	A. Dark staining granule that synthesize proteins
22. Mitochondria	B. Flattened membranous sacs that packages, modifies and segregates protein molecules
23. Golgi apparatus	C. Its enzymes catalyse reactions in detoxifying drugs, etc
24. Smooth endoplasmic reticulum	D. A sperm cell is its example in human beings
25. Ribosomes	E. Digest worn out cellular parts or substances that enter cells
26. Flagella	F. Responsible for ATP synthesis/power plant of a cell.

Fill in the blanks. In your answer sheet write the correct missing word e.g. 21. Skin

27. A pancreatic enzyme that splits molecules of starch into double sugars is -----

28. The ----- is an internal structure of a kidney that is continuous with the ureter.

29. Bone cells that secrete the bone matrix are called -----

30. The ----- is the surgical procedure that involves sucking out small amounts of adipose tissue from various areas of the body.

Total: 30 Marks

Section 2

Question 1

- A. State the three (3) layers that cover the kidneys (3)
- B. Explain any three (3) general functions of the kidneys. (6)
- C. Discuss any three (3) physical characteristics of urine (6)

Question 2

- A. Distinguish between a skeletal muscle tissue and a smooth muscle tissue in terms of their description, location and function. (6)
- B. Discuss any five (5) important functions of the bones. (10)

Question 3

Situation: When you are thirsty and you see a glass with water, you then lift the glass of water to drink.

Question 3A relates to the above situation.

- A. Explain the three (3) overlapping functions of the nervous system in this situation. (6)
- B. Describe the short term regulation of blood pressure by hormones (8)

Total: 45 Marks