

**UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES
GENERAL NURSING DEPARTMENT**

**SUPPLEMENTARY EXAMINATION PAPER
JULY 2006**

**COURSE TITLE: ANATOMY AND
PHYSIOLOGY**

COURSE CODE: HSC 101

MARKS ALLOCATED: 100

TIME ALLOCATED: THREE (3) HOURS

INSTRUCTIONS:

- 1. THERE ARE FOUR (4) QUESTIONS IN THIS PAPER**
- 2. ANSWER ALL QUESTIONS**
- 3. ALL QUESTIONS CARRY 25 MARKS**

Question 1

Multiple choice

Select the most appropriate answer for each question e.g. 26. a

1. Sebum is responsible for all the following except for
 - a. inhibiting growth of bacteria
 - b. retarding water loss from the body surface
 - c. oiling the palms and soles
 - d. lubricating the surface of the skin

2. guards against water loss from the dermis
 - a. keratin
 - b. collagen fibres
 - c. papillae
 - d. elastic fibres

3. lines the esophagus
 - a. transitional
 - b. stratified squamous
 - c. stratified edumnar
 - d. simple squamous

4. The term used to describe the type of solution in which cells will gain water from their environment is
 - a. isotonic
 - b. hypertonic
 - c. hypotonic
 - d. catatonic

5. The stomach mucosa consists of which type of cells
 - a. simple squamous epithelia
 - b. simple columnar epithelia
 - c. stratified squarmous epithelia
 - d. stratified columnar epithelia

6. Following the removal of the larynx an individual will
 - a. be unable to cough
 - b. be unable to speak
 - c. be in a respiratory difficult or arrest
 - d. be in a respiratory difficult or arrest

7. The following activities occur during prophase except
- separation of chromatids
 - coiling tightly of chromatids
 - disorganization of the nucleus
 - appearance of spindle fibers
8. Cilia and flagella are similar in that
- both propel the cell itself
 - both are comprised of long cytoplasmic projections
 - both have nine pairs of microtubules around their periphery
 - both are found in the respiratory tract
9. Scar tissue is a variation of
- epithelium
 - connective tissue
 - muscle tissue
 - nerve tissue
10. After drinking two litres of water, you make several trips to the toilet. This increase in urination reflects an increase in
- diffusion
 - osmosis
 - filtration
 - solvent pumping
11. If the interior of the plasma membrane is more permeable to potassium ions, what is the expected state of the skeletal muscle?
- polarized
 - depolarised
 - hyperpolarized
 - threshold
12. Parathyroid hormone
- increases bone formation and lowers blood calcium levels
 - increases calcium excretion from the body
 - decreases calcium absorption from the gut
 - demineralises bone and raises blood calcium level
13. Which is the bone that we sit on
- ilium
 - ischium
 - pubis
 - sacrum

14.is the tissue that is composed largely of intercellular matrix, important in protection and support
- a. epithelia tissue
 - b. muscle tissue
 - c. connective tissue
 - d. nervous tissue
15. The contain paranasal sinuses
- a. temporal bones
 - b. mandible bones
 - c. maxillary bones
 - d. parietal bones
16. The function of the T tubules in muscle contraction is to
- a. make and store glycogen
 - b. form proteins
 - c. release calcium ions cytoplasm
 - d. transmit the action potential deep into cell
17. All these hormones are secreted by the anterior pituitary except
- a. antidiuretic hormone
 - b. growth hormone
 - c. gonadotropins
 - d. T S H
18. A hormone not involved in sugar metabolism is
- a. glucagon
 - b. cortisone
 - c. insulin
 - d. aldosterone
19. Which of the following can lead to decreased venous return of blood to the heart?
- a. damage to the venous valves
 - b. an increase in blood volume
 - c. an increase in venous pressure
 - d. increased muscular activity

20. The myocardium receives its blood supply directly from
- aorta
 - the coronary arteries
 - the coronary sinuses
 - the pulmonary arteries
21. In atherosclerosis which layer of the vessel wall thickens most
- tunica interna
 - tunica media
 - tunica adventitia
 - tunica externa
22. The structure of a capillary wall differs from that of a vein or an artery because
- it has two tunics instead of three
 - there is less smooth muscle
 - there is a single layer
 - none of the above
23. Lymph nodes are densely clustered in all of the following body areas except
- the brain
 - the axillae
 - the liver
 - the groin
24. Cells that can directly attack cells include all of the following except
- macrophages
 - cytotoxic T. cells
 - helper T cells
 - natural killer cells
25. Which of the following determines the direction of gas movement
- solubility in water
 - partial pressure gradient
 - temperature
 - indecular weight and size of the gas molecule

TOTAL 25 MARKS

Question 2

- a) According to the principle of complementarity, how does anatomy relate to physiology? (3)
- b) List and describe briefly the five factors that must be present or provided to sustain life (15)
- c) Describe the process of tissue repair (7)

TOTAL 25 MARKS

Question 3

- a) Match the key terms to the appropriate description
 - A. fibrous joint
 - B. cartilaginous joint
 - C. synovial joint
 - 1. exhibit a joint cavity
 - 2. types are sutures
 - 3. bones connected by collagen fibres
 - 4. types include sychondroses
 - 5. all are diarthrotic
 - 6. many are amphiarthrotic
 - 7. bones connected by a disc of hyaline cartilage or fibrocartilage
 - 8. nearly all are synarthrotic
 - 9. types include symphises
 - 10. shoulder, hip and elbow joints (5 marks (1/2 each))
- b) Name the 10th cranial nerve and its effect on five organs of the abdomen (5 marks)
- c) Describe the sequence of excitation of the heart (15 marks)

TOTAL 25 MARKS

Question 4

- a) Describe the life cycle of red blood cells. (10 marks)
- b) Describe the chemical digestion of carbohydrates (10 marks)
- c) State the substances reabsorbed in the Loop of Henle and the mechanism by which they are absorbed. (5 marks)

TOTAL 25 MARKS