

UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCES

FINAL EXAMINATION

MAY 2016

COURSE CODE: EHS 108
TITLE OF PAPER: PRINCIPLES OF ANATOMY AND PHYSIOLOGY
DURATION: 2 HOURS
MARKS: 75

INSTRUCTIONS

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

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

SECTION 1

Instructions: For each question/statement, 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.

Situation: You are tasked to give awareness to your community about prevention of skin cancer.

Question 1 – 3 relate to the above situation.

1. Which of the following behaviours pose as major risk factors for developing skin cancer?
 - i. Overexposure to ultraviolet (UV) radiation in sunlight
 - ii. Pigmentation irregularity such as albinism
 - iii. Being a farmer and working in the fields for long hours
 - iv. Exposure to chemicals such as tar, coal, or paraffin
 - A. i and iii only
 - B. ii and iv only
 - C. ii and iii only
 - D. i, ii and iv only

2. Which type of skin cancer is most dangerous and resistant to chemotherapy?
 - A. Melanoma
 - B. Squamous cell carcinoma
 - C. Basal cell carcinoma
 - D. Squamous benign carcinoma

3. To reduce chances of developing skin cancer, how would you advice your community to do?
 - i. Examine the skin on regular basis
 - ii. Wear long-sleeved shirts and wide brim hats
 - iii. Reduce sun exposure; seek shade
 - iv. Avoid using sunscreen regularly when exposed to sunlight
 - A. i. and ii only
 - B. i. and iii only
 - C. i, ii. and iii only
 - D. i. and iv only

4. Which of the following is reabsorbed by the proximal convoluted tubule?
- i. Na^+
 - ii. K^+
 - iii. Amino acids
 - iv. Water
- A. i, ii, iii
 - B. i and ii
 - C. iii and iv
 - D. iv only
5. Glucose is not normally found in the urine because it -----
- A. Does not pass through the wall of the glomerulus
 - B. Is kept in the blood by colloid osmotic pressure
 - C. Is reabsorbed by the tubule cells
 - D. Is removed by body cells before it reaches the kidney
6. A freshly voided urine sample contains excessive amounts of urochrome which has a(n)--
- A. pH below normal
 - B. pH above normal
 - C. Ammonia like odor
 - D. Pale to dark yellow color
7. Conditions such as diabetes mellitus and starvation are closely linked to -----
- A. Pyuria
 - B. Hematuria
 - C. Albuminuria
 - D. Ketonuria
8. Which of the following is true about an antidiuretic hormone (ADH)?
- A. Promotes water reabsorption
 - B. Promotes sodium reabsorption
 - C. Secreted in response to increased extracellular fluid osmolality
 - D. Causes insertion of aquaporins in proximal convoluted tubule
9. Which of the following has the greatest stimulating effect on the respiratory centres in the brain?
- A. Oxygen
 - B. Carbon dioxide
 - C. Calcium
 - D Potassium

10. Oxygen and carbon dioxide are exchanged in the lungs and through all cell membranes by

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- A. Active transport
 - B. Diffusion
 - C. Filtration
 - D. Osmosis

11. Nutrient blood supply of the lungs is provided by-----

- A. Aorta
- B. Pulmonary arteries
- C. Pulmonary veins
- D. Bronchial arteries

12. Lymph nodes are densely clustered in all of the following body areas **EXCEPT:**

- A. Cervical neck
- B. Axillae
- C. Brain
- D. Groin

13. Germinal centres in lymph nodes are largely sites of-----

- i. Macrophages
 - ii. T-lymphocytes
 - iii. Proliferating B- Lymphocytes
 - iv. Monocytes
- A. i. and iii
 - B. ii and iv
 - C. iii only
 - D. I only

14. A lymphoid organ that functions during youth and then begins to atrophy is the----

- A. Spleen
- B. Palatine tonsils
- C. Thymus
- D. Bone marrow

15. Which one of the following diseases is caused by an uncalcified epiphyseal plate in children?

- A. Osteoporosis
- B. Osteomalacia
- C. Arthritis
- D. Rickets

Instructions: Match each of the following directional terms with the correct corresponding definition e.g 13 A. NOTE: There is only ONE answer for each question.

Directional Term	Definition
16. Distal	A. Toward the midline of the body
17. Medial	B. Away from the head end or toward the lower part of the body
18. Proximal	C. Toward or at the body surface
19. Superior	D. Closer to the origin of the body part
20. Ventral	E. Away from the midline of the body
21. Superficial	F. Toward or at the back of the body
22. Intermediate	G. Toward or at the front of the body
23. Lateral	H. Between a more medial and a more lateral structure
24. Dorsal	I. Farther from origin of the body part
25. Inferior	J. Toward the head end or upper part of a structure

Total: 25 marks

Section 2
Short essay questions

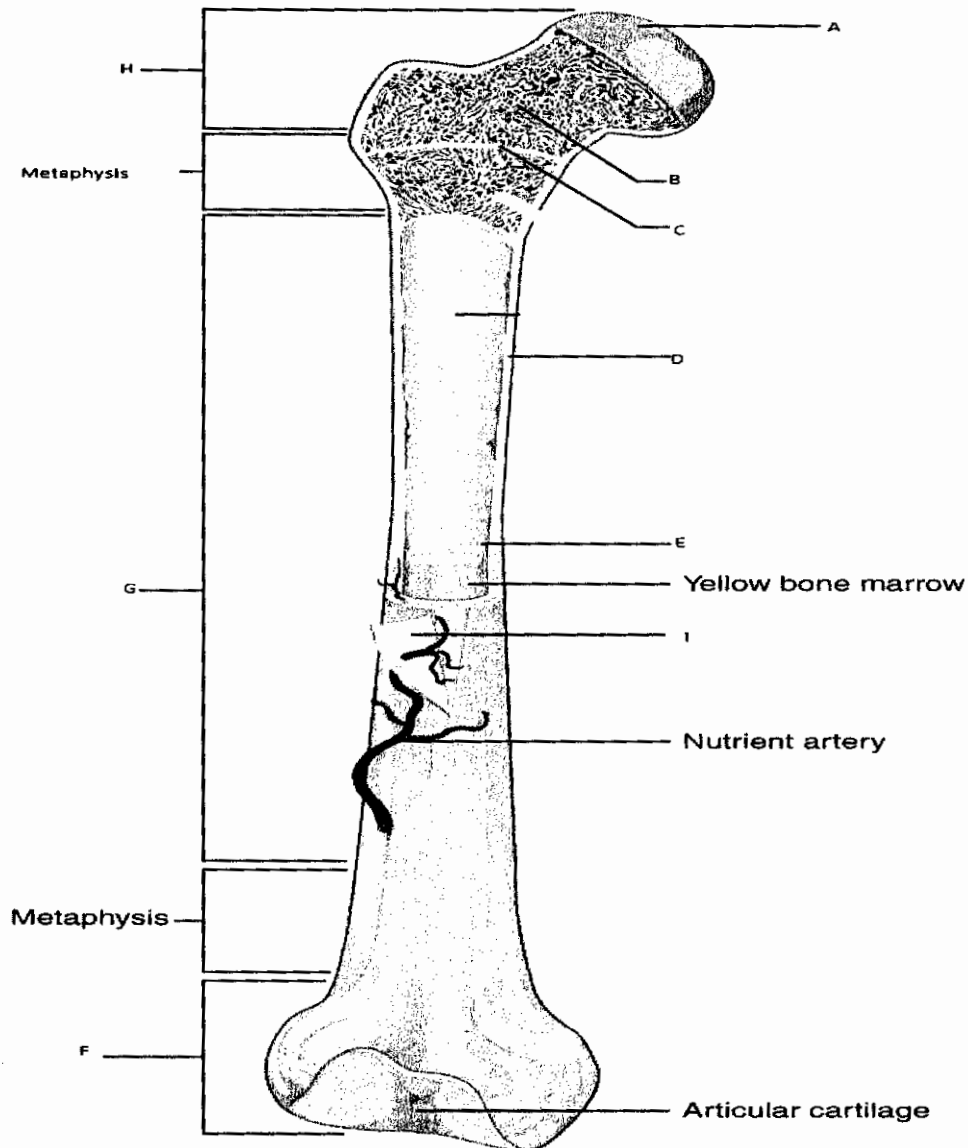
Question 1

- A. Define homeostasis and describe its three main components (7)
- B. With aid of examples, differentiate between a negative feedback mechanism and a positive feedback mechanism. (4)

Total: 11 marks

Question 2 (Total Marks: 19)

- A. State and explain any five (5) functions of a bone (10)
- B. Study the diagram below and label the necessary structures of a long bone (A – I) (9)



Question 3

- A. State the two types of glands and explain their functions (4)
- B. State the six (6) hormones produced by the anterior pituitary gland and describe their functions. (12)
- C. Name the two major pancreatic hormones and explain their functions (4)

Total: 20 Marks

Grand Total: 50 Marks