UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES

Final Examination : MAY 2005

Title of paper : Human Anatomy and Physiology

Course Code : HSC101

Time allowed : 3 hours

Marks allocated : 100

Instructions

1. There are four (4) question in this paper.
2. Answer all the questions.
3. Each question carries 25 marks.
4. Each correct statement or fact carries 1 mark.
5. Answer each question on a new page of your answer book.

Question 1.

Instruction: This question is divided into two sections. Section A comprises multiple choice questions and carries 10 marks while Section B consists of matching questions and carries 15 marks.

Section A

In your answer book write the letter that corresponds with the correct answer, e.g 5 .a

1. The parts of a cell known as power plants and capable of providing the cell's ATP supply are the:
    a. Endoplasmic reticulum
    b. Mitochondria
    c. Robosomes
    d. Lysosomes

2. Which of the following cell types are predominant in growing cartilage and produce new matrix till the end of skeletal growth at adolescence?
    a. Chondroblasts
    b. Osteoblasts
    c. Osteoclasts
    d. White blood cells

3. Which of these cells are responsible for bone remodeling ?
    a. Osteoblasts and osteoclasts
    b. Chondrocytes and osteocytes
    c. Chondroblasts and osteoclasts
    d. Osteoblasts and osteocytes

4. Neurotransmitters are stored in synaptic vesicles within:
    a. Myofibrils
    b. Motor units
    c. Terminal ends of axons
    d. Nerves

5. Which of the following is not a function of the renal system?
    a. Regulates pH of body fluids
    b. Regulates the volume and electrolyte composition of body fluids
    c. Produces hormones that regulate hypothalamic secretions

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d. Produces hormones that regulate arterial blood pressure and erythropoiesis.

6. The main target of the human immunodeficiency virus in the immune system is the :
   a. Helper T cells (T_H)
   b. Cytotoxic T cells
   c. Suppressor T cells
   d. Memory cells

7. The tube that runs obliquely from the middle ear to the nasopharynx is the:
   a. External auditory meatus
   b. Pharyngotympanic tube
   c. Cocchlea
   d. Semicircular canal

8. Which group of hormones are released in larger amounts when the body is under stress and help it to resist the stressors?
   a. Gonadocorticoids
   b. Mineralocorticoids
   c. Glucocorticoids
   d. Insulin

9. Worm infestation leads to a rise in which of the following type of leukocyte?
   a. Neutrophils
   b. Basophils
   c. Lymphocytes
   d. Eosinophils

10. Which of the following phases of gastric secretion occurs before food enters the stomach?
   a. Gastric phase
   b. Intestinal phase
   c. Salivary phase
   d. Cephalic phase

SECTION B

Instruction: Column A is a list of names or words. Column B is either a description or definition or function of the words in column A. Match the names in A to their descriptions / associations or functions in B, e.g I = A

COLUMN A	COLUMN B
I. Gallbladder	A. Major sensory nerve of the face.
II. Autorhythmicity	B. A property of certain cardiac cells of being able to initiate electrical impulses.
III. Immunogenicity	C. Hormone produced by kidneys for the process of red blood cell formation.
IV. Trigeminal nerve	D. Empties deoxygenated blood into the right atrium.
V. Vagus nerve	E. Strongest part of the hip bones and bears our weight when we sit.
VI. Medulla oblongata	F. Forms the junction between the two parietal bones of the skull.
VII. Retina	G. During this stage a muscle fibre cannot be stimulated until repolarization is complete.
VIII. Erythropoietin	H. Its neural layer contains photoreceptors.
IX. Acromegaly	I. There is crossing over of the pyramids here.
X. Sagittal suture	J. A property of some antigens of being able to stimulate proliferation of specific lymphocytes and antibodies.
XI. Tidal volume	K. Amount of air inhaled or exhaled with each breath under resting conditions
XII. Lacrimal gland	L. Involved in regulation of heart rate and breathing
XIII. Coronary sinus	M. Secretes tears.
XIV. Ischial tuberosity	N. Acts as a storage for bile.
XV. Refractory period	O. Caused by oversecretion of growth hormone in adults.

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QUESTION 2

a) Explain the five (5) events that occur in phagocytosis. (5)

b) Describe the sequence of actions that occur when sound reaches the oval window of the inner ear to enable us to hear. (10)

c) Explain how information transfer across a chemical synapse takes place. (5)

d) Explain the five classes of receptors by the type of stimulus they respond to. (5)

QUESTION 3

a. Which agglutinins and agglutinogens are found in the different blood groups ? (8)

b. Describe the process of haemostasis. (10)

c. Movement of gases is influenced by certain factors; describe these factors. (7)

QUESTION 4.

a. Describe how urine is formed. (10)

b. There are two common disorders of water balance; describe these briefly. (3)

c. Describe the four (4) acid – base imbalances and give examples or possible causes. (12)

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