

CANDIDATE NUMBER.....



AFRICA
UNIVERSITY
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“Investing in Africa’s Future”

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS DEGREE

NSLS106: ANATOMY & PHYSIOLOGY

END OF SECOND SEMESTER FINAL EXAMINATIONS

NOVEMBER 2024

LECTURER: DR MAIBOUGE SALISSOU

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
 2. Answer **all** questions in sections A on the question paper.
 3. Answer **4** questions in section B on separate answer sheets provided.
 4. Answer any **3** questions in section C on separate answer sheets provided
 5. The mark allocation for each question is indicated at the end of the question
 6. Credit will be given for logical, systematic and neat presentations in sections B and C
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SECTION A: MULTIPLE CHOICE [40 MARKS]

- **Answer all questions by indicating the correct response using a T for TRUE or F for FALSE for each statement in all the questions**
- **Each question carries 2 marks**

- 1) A plane that divides the body into anterior and posterior parts are
 - a. frontal (coronal) plane.
 - b. sagittal plane.
 - c. transverse plane.
 - d. medial plan
- 2) The pelvic cavity contains the following
 - a. kidneys.
 - b. liver.
 - c. spleen.
 - d. stomach.
- 3) The lungs are
 - a. part of the mediastinum.
 - b. surrounded by the pericardial cavity.
 - c. found within the thoracic cavity.
 - d. separated from each other by the diaphragm.
- 4) Small pieces of matter, and even whole cells, can be transported across the plasma membrane in
 - a. membrane channels.
 - b. carrier molecules.
 - c. receptor molecules.
 - d. marker molecules.

- 5) The rate of diffusion increases if the following
- a.** concentration gradient decreases.
 - b.** temperature of a solution decreases.
 - c.** viscosity of a solution decreases.
 - d.** all of the above
- 6) Stratified epithelium is usually found in areas of the body where the principal activities are:
- a.** filtration.
 - b.** protection.
 - c.** absorption.
 - d.** diffusion.
- 7) Pseudostratified ciliated columnar epithelium can be found lining the following
- a.** digestive tract.
 - b.** trachea.
 - c.** thyroid gland.
 - d.** kidney tubules.
- 8) In which of these areas of the body is thick skin found?
- a.** back of the hand
 - b.** abdomen
 - c.** over the shin
 - d.** bridge of the nose
- 9) The function of melanin in the skin is to
- a.** lubricate the skin.
 - b.** prevent skin infections.
 - c.** protect the skin from ultraviolet light.
 - d.** reduce water loss.

10) The prime function of osteoclasts is to

- a.** prevent osteoblasts from forming.
- b.** become osteocytes.
- c.** break down bone.
- d.** secrete calcium salts and collagen fibers

11) Transverse foramina are found only in

- a.** cervical vertebrae.
- b.** thoracic vertebrae.
- c.** lumbar vertebrae.
- d.** the sacrum.

12) Which of these statements concerning ribs are true?

- a.** The true ribs attach directly to the sternum with costal cartilage.
- b.** There are five pairs of floating ribs.
- c.** The head of the rib attaches to the transverse process of the vertebra.
- d.** Vertebrochondral ribs are classified as true ribs.

13) The point where the scapula and clavicle connect is the

- a.** coracoid process.
- b.** styloid process.
- c.** glenoid cavity.
- d.** acromion process.

14) The distal medial process of the humerus to which the ulna joins are:

- a.** epicondyle.
- b.** deltoid tuberosity.
- c.** malleolus.
- d.** capitulum

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15). When comparing a male pelvis with a female pelvis, which of these statements are true?

- a. The pelvic inlet in males is larger and more circular.
- b. The subpubic angle in females is less than 90 degrees.
- c. The ischial spines in males are closer together.
- d. The sacrum in males is broader and less curved

16). Which of these are not associated with synovial joints?

- a. perichondrium on the surface of articular cartilage
- b. fibrous capsule
- c. synovial membrane
- d. synovial fluid

17) Myosin myofilaments are attached to the Z disk.

- a. synovial fluid
- b. found primarily in the I band.
- c. thinner than actin myofilaments.
- d. absent from the H zone.

18) Which of these statements about the molecular structure of myofilaments are true?

- a. Tropomyosin has a binding site for Ca^{2+} .
- b. The head of the myosin molecule binds to an active site on G actin.
- c. ATPase is found on troponin.
- d. Troponin binds to the rodlike portion of myosin.

19) The part of the sarcolemma that invaginates into the interior of the skeletal muscle cells are?

- a. T tubule system.
- b. sarcoplasmic reticulum.
- c. myofibrils.
- d. terminal cisternae.

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20) Hyper secretion of growth hormone

- a. results in gigantism if it occurs in children.
- b. causes acromegaly in adults.
- c. all of the above.
- d. can lead to severe atherosclerosis.

SECTION B: [20 MARKS]

Answer four questions of your choice on separate answer sheets provided

- 1) Compare and contrast endocytosis exocytosis and mediated transport. [5 marks]
- 2) Differentiate between fibrocartilage and elastic cartilage [5 marks]
- 3) Write short notes on accessory skin structures [5 marks]
- 4) Write short notes on fibrous joints [5 marks]
- 5) Draw and label the lateral view of the skull [5 marks]
- 6) Write short notes on cardiac cycle [5 marks]

SECTION C: [75 marks]

Answer any 3 questions from this section on separate answer sheets provided

- 1. Discuss Calcium Homeostasis [25]
- 2. Discuss Pelvic Girdle Joints [25]
- 3. Discuss anatomy of Vertebral Column [25]
- 4. Discuss the function of Neuromuscular Junction in relation to Excitation–Contraction Coupling [25]
- 5. Discuss Chemical Synapses in relation to Neurotransmitters [25]
- 6. a). Describe the gross anatomical structure of the thyroid gland and its function [15]
b). Discuss thyroid dysfunction [10]

END