



KISII UNIVERSITY
UNIVERSITY EXAMINATIONS

SPECIAL EXAMINATIONS
FIRST YEAR EXAMINATION FOR THE AWARD OF THE
DIPLOMA IN COMMUNITY HEALTH AND DEVELOPMENT
FIRST SEMESTER, 2021/2022
(JULY, 2022)

COMH 0111: HUMAN ANATOMY AND PHYSIOLOGY

STREAM: Y1 S1

TIME: 2 HOURS

DAY: TUESDAY, 11:30 – 1:30 P.M.

DATE: 26/07/2022

INSTRUCTIONS:

- 1. Do not write anything on this question paper.***
- 2. Answer Question ONE and any other TWO Questions:***

Section A: Multiple Choice

Answer ALL Questions in this section

1. A section that divides the body on the longitudinal plane into equal right and left parts is called:
 - A. median (midsagittal)
 - B. oblique
 - C. transverse
 - D. frontal
 - E. coronal
2. Which of the following is the correct sequence, going from simplest to most complex, in the levels of structural organization of the human body:
 - A. chemical level, tissue level, cellular level, organ system level, organ level, organismal level
 - B. cellular level, chemical level, tissue level, organ system level, organismal level, organ level
 - C. chemical level, cellular level, tissue level, organ level, organ system level, organismal level
 - D. cellular level, chemical level, tissue level, organ level, organ system level, organismal level
 - E. cellular level, tissue level, chemical level, organ level, organ system level, organismal level
3. The lymphatic system:
 - A. Synthesizes vitamin D

- B. Responds to internal and external changes by activating appropriate muscles and glands
 - C. Secretes hormones that regulate processes such as growth, reproduction, and nutrient use (metabolism) by body cells
 - D. Picks up fluid leaked from blood vessels and returns it to the blood
 - E. Produces heat
4. Which of these regions in the abdominopelvic cavity are medial:
 - A. epigastric, umbilical, and hypogastric regions
 - B. umbilical, right lumbar, and left lumbar regions
 - C. epigastric, right, and left hypochondriac regions
 - D. iliac (inguinal), lumbar, and hypogastric regions
 - E. right and left iliac (inguinal), and hypogastric regions
 5. Which type of section could be used to separate the thoracic cavity from the abdominopelvic cavity:
 - A. dorsal
 - B. transverse
 - C. sagittal
 - D. coronal
 - E. ventral
 6. Which type of tissue conducts electrochemical impulses:
 - A. nervous tissue
 - B. connective tissue
 - C. muscle tissue
 - D. dense tissue
 - E. epithelial tissue
 7. Which type of epithelial tissue is found lining kidney tubules:
 - A. simple columnar
 - B. simple cuboidal
 - C. simple squamous
 - D. pseudostratified columnar
 - E. stratified squamous
 8. Perform transcription on this partial sequence of DNA into mRNA:
TTA-GCT-ACT
 - A. GGC-TAG-TAG
 - B. AAT-CGA-TGA
 - C. UUT-CGU-TGU
 - D. UUA-CGU-AGU
 - E. AAU-CGA-UGA
 9. The last step in the process of tissue regeneration is:
 - A. scab formation
 - B. surface epithelium regenerates
 - C. granulation tissue forms
 - D. blood clot forms
 - E. capillaries become very permeable
 10. Looking into a microscope, you notice cells swimming, propelled by a long tail. What cell structure must these cells have in order to be mobile:
 - A. smooth ER
 - B. flagella
 - C. ribosomes
 - D. cytoplasm
 - E. peroxisomes

11. Which one of the following is NOT true about the cell membrane:
 - A. it allows water soluble molecules to pass through easily
 - B. its lipid components are primarily phospholipids and cholesterol
 - C. it consists of two lipid layers
 - D. it regulates the entry and exit of cell materials
 - E. it contains proteins for specialized functions
12. Facilitated diffusion requires the use of:
 - A. lysosomes
 - B. protein channels or molecules
 - C. Golgi apparatus
 - D. ATP
 - E. vacuoles
13. The correct order of phases of the cell cycle is:
 - A. telophase, metaphase, anaphase, prophase
 - B. prophase, metaphase, anaphase, telophase
 - C. prophase, interphase, metaphase, anaphase, telophase
 - D. metaphase, anaphase, prophase, telophase
 - E. interphase, prophase, metaphase, anaphase, telophase
14. The epithelial tissue found in areas subject to considerable friction and abuse, such as the esophagus, is:
 - A. transitional
 - B. simple squamous epithelium
 - C. pseudostratified columnar epithelium
 - D. simple columnar epithelium
 - E. stratified squamous epithelium
15. Which organelle uses molecular oxygen to convert and detoxify harmful substances such as alcohol and free radicals:
 - A. secretory vesicles
 - B. lysosomes
 - C. ribosomes
 - D. peroxisomes
 - E. Golgi apparatus
16. The "tanning" effect (darkening of the skin) that occurs when a person is exposed to the sun is due to:
 - A. melanin
 - B. keratin
 - C. oil
 - D. sweat
 - E. Langerhans cells
17. Which of the following is NOT a true statement about the papillary layer of the dermis:
 - A. it is the deepest layer of the skin
 - B. it is highly vascular
 - C. it contains nerve endings that respond to touch and temperature stimuli
 - D. it produces the pattern for fingerprints
 - E. it is located immediately beneath the epidermis
18. The secretions of the eccrine glands are:
 - A. solely metabolic wastes
 - B. basic

- C. 99% water, sodium chloride, and trace amounts of wastes, lactic acid, and
 - D. fatty substances, proteins, antibodies, and trace amounts of minerals and vitamins
 - E. primarily uric acid
19. Although you get wet while swimming, a tough protein within the skin prevents it from soaking up moisture like a sponge. This substance is:
- A. carotene
 - B. mucus
 - C. keratin
 - D. melanin
 - E. serous fluid
20. A needle would pierce the epidermal layers of the forearm in which order:
- 1. stratum basale
 - 2. stratum corneum
 - 3. stratum granulosum
 - 4. stratum lucidum
 - 5. stratum spinosum
- A. 1, 3, 5, 2, 4
 - B. 2, 4, 3, 5, 1
 - C. 2, 3, 5, 1
 - D. 1, 5, 3, 4, 2
 - E. 2, 3, 4, 1, 5

SECTION B: Short Answer Questions (20 Points)

Answer ALL questions in this section

1. Explain how the skin functions to protect deeper tissues. **(4 Marks)**
2. Since epithelial tissues are avascular, explain how these tissues receive nourishment. **(4 Marks)**
3. Identify four changes that occur to the skin and subcutaneous connective tissue as a result of aging, and state how these changes can be delayed. **(4 Marks)**
4. Differentiate between the two types of endoplasmic reticulum. **(4 Marks)**
5. Explain the difference between homeostasis and metabolism. **(4 Marks)**

Section C: Long Essay Questions (40 points)

Answer TWO questions from this section

1. Explain the differences among the three types of muscle tissue. **(20 Marks)**
2. List and explain the eight necessary human life functions. **(20 Marks)**
3. Discuss the four stages of mitosis. **(20 Marks)**