



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya.
Tel: +254(0) 799 529 958, +254(0) 799 529 959, +254 (0)712 524 293
Website: www.must.ac.ke Email: info@mucst.ac.ke

UNIVERSITY EXAMINATIONS 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CLINICAL MEDICINE AND COMMUNITY HEALTH DEVELOPMENT

CCM 3132: HUMAN PHYSIOLOGY I

DATE: JANUARY 2025

TIME: 3 HOURS

INSTRUCTIONS: Answer all questions in the booklet provided

Ensure that all your answers are properly numbered

Section A: Short Answer Questions

Section B: Long Answer Questions

Section C: Multiple Choice Questions (MCQs)

SECTION A: SHORT ANSWER QUESTIONS (40 MARKS)

1. Write short notes on passive transport (8 Marks)
2. Describe the four valves of the heart (8 Marks)
3. Discuss the lung volumes (8 Marks)
4. Describe the neuron as an excitable tissue (6 Marks)
5. Discuss the physiology of cardiac muscle (6 Marks)
6. Write short notes on stroke volume (4 Marks)



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

SECTION B: (40MARKS) LONG ANSWER QUESTIONS (CHOOSE THE CORRECT ANSWER ONLY).

1. Discuss five pulse points (10 Marks)
2. Discuss the physiology of respiration (10 Marks)
3. Write short notes on homeostasis (10 Marks)
4. Describe the produce of taking blood pressure (10 Marks)

SECTION C: MULTIPLE CHOICE QUESTIONS (MCQS) (20 MARKS)

1. The alveolar epithelium of lungs is
 - a) ciliated squamous
 - b) nonciliated squamous
 - c) nonciliated columnar
 - d) ciliated columnar
2. This is the reason why the SA node acts as heart's pacemaker
 - a) because it has a poor cholinergic innervations
 - b) because it has a rich sympathetic innervations
 - c) because of its capability of generating impulses
 - d) because it generates impulses at the highest rate
3. This about second heart sound is incorrect
 - a) it is occasionally split
 - b) it is due to the closure of semilunar valves
 - c) indicates the commencement of diastole
 - d) it has a longer duration than the first sound
4. The reason for the dicrotic notch on the aortic pressure curve is
 - a) contraction of aorta
 - b) closure of the aortic valve
 - c) rapid filling of the left ventricle
 - d) closure of the pulmonary valve
5. Rise in the carotid sinus pressure leads to
 - a) reflex hypercapnia



- b) reflex hyperpnea
- c) reflex bradycardia
- d) reflex tachycardia

6. Peripheral vascular resistance can be best given by

- a) pulse pressure as it corresponds to aortic compliance and stroke volume
- b) mean arterial pressure as it supplies blood to organs
- c) diastolic blood pressure as it leads to the decrease till mid-thoracic aorta
- d) systolic pressure as it causes an increase in the descending aorta

7. Duration of the absolute period, that is, when the heart is in diastole is

- a) 0.2 seconds
- b) 0.1 seconds
- c) 0.4 seconds
- d) 0.7 seconds

8. This sets glomerular capillary pressure apart from other capillaries found in the body

- a) Lower filtration pressure
- b) Higher filtration pressure
- c) Both (a) and (b)
- d) none of these

9. The ventricular muscles accepts impulses directly from

- a) AV node
- b) Bundle of His
- c) Right and left bundle branches
- d) Purkinje system

10. This is the similarity between pulmonary and systemic circulation

- a) total capacity
- b) pulse pressure
- c) peripheral vascular resistance
- d) volume of the circulation per minute

11. On the heart, the impact of adrenaline is all of these except that

- a) it increases the uptake of oxygen by the heart
- b) it increases the contraction force



- c) it decreases the myocardial irritability
- d) it increases the heart rate

12. Division of joints allowing ample movement between 2 or more specific heads of bones are grouped as

- a) diarthrosis
- b) tendons and tibia
- c) synarthroses
- d) ligaments and femur

13. Ligaments restrict this action

- a) cartilage junction
- b) hyper extension
- c) hyper flexion
- d) both (b) and (c)

14. In muscle contraction, this ion is essential

- a) Cl
- b) Ca
- c) K
- d) Na

15. This is an example of stretch reflex stimulated by passive muscle movement

- a) patellar reflex
- b) tendon reflex
- c) flexor reflex
- d) ipsilateral reflex

16. This is a major energy source in a hurdle race to the leg muscles

- a) glycolysis
- b) lactate and pyruvate
- c) performed ATP
- d) oxidative metabolism

17. This event occurs during muscular contraction

- I. H-zone disappears
- II. A band widens



- III. I band shortens
- IV. Width of A band is unaffected
- V. M line and Z line get closer

- a) I, II and III
- b) I, III, IV and V
- c) II, IV and V
- d) I, II and V

18. Muscles utilized for controlling the flow of all substances within lumen are grouped as

- a) hormonal system
- b) skeletal system
- c) cardiac muscles
- d) smooth muscles

19. Division of joints fibrous in nature permitting no movement is

- a) tendons and tibia
- b) ligaments and femur
- c) arthrosis
- d) synarthroses

20. A small band of dense, white and fibrous elastic tissue is grouped as

- a) ligament
- b) muscle junction
- c) muscle filament
- d) muscle cartilage

21. In the striated muscles, the functional unit of contractile system is

- a) Z band
- b) H band
- c) sarcomere
- d) myofibril

