

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E.

Branch: MEDICAL ELECTRONICS

Course Code: 19ML3ESHPM

Course: HUMAN PHYSIOLOGY AND MEDICAL PHYSICS

Semester: III

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

- 1 a) Explain the mechanism of breathing **07**
b) The intrapleural pressure is negative. Justify this statement with causes **06**
c) What are the major factors in the control of respiration **07**

OR

- 2 a) Explain the factors influencing the respiratory quotient(RQ) **10**
b) Explain the Fick's law in relation to respiration process **05**
c) Name the partial pressure of gases in different situation during respiration. **05**
Express the values in mmHg

UNIT - II

- 3 a) With neat diagram explain the structural anatomy of human heart **10**
b) Explain the electrical and mechanical properties of human heart muscle **10**

OR

- 4 a) Explain the following **20**
i. Movement of heart valves
ii. Heart sounds
iii. Work done by heart
iv. Factors influencing cardiac output

UNIT - III

- 5 a) What are the factors which will influence in the metabolic activity? Also explain the mechanism of enzyme action **10**
b) What is BMR and RQ? Explain them **05**
c) Explain how Bomb calorimeter is used to find energy liberated from food stuff? **05**

UNIT - IV

- 6 a) Write the properties of smooth muscles. **05**
b) Discuss the classification of Exercises. **05**
c) What is the importance of Neuro muscular junction? **10**

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - V

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Explain the following

5x4=20

- i. Intensity of sound waves
- ii. Speech production
- iii. Physiology of ear
- iv. Structure of an Eye

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