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

Autonomous Institute Affiliated to VTU

April 2024 Semester End Main Examinations

Programme: B.E.

Semester: III

Branch: MEDICAL ELECTRONICS

Duration: 3 hrs.

Course Code: 19ML3ESHPM

Max Marks: 100

Course: HUMAN PHYSIOLOGY AND MEDICAL PHYSICS

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. Express the values in mmHg | 05 |

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

- 7 Explain the following **5x4=20**
- i. Intensity of sound waves
 - ii. Speech production
 - iii. Physiology of ear
 - iv. Structure of an Eye

B.M.S.C.E. - ODD SEM 2023-24