U.S.N.										

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

Autonomous Institute Affiliated to VTU

May 2023 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 **Date: 08.05.2023**

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

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 - I

1	a)	Discuss the attributes of the flow of fluids.	**10**
	b)	Define the term ventilation perfusion ratio and explain its variations.	**10**

OR

2	a)	Specify the significance of lung volumes and capacities.	**12**
	b)	Derive the Bernoulli's equation for the flow of fluid.	**08**

UNIT - II

3	a)	Enumerate the factors affecting heart rate.	**06**
	b)	Derive the equations to model the flow in blood vessels.	**10**
	c)	List out the causes of Stokes-Adams syndrome.	**04**

OR

4	a)	Discuss the generation and significance of waves and complexes of a normal electrocardiogram.	**12**
	b)	Explain the Windkessel model with relevant equations.	**08**

UNIT - III

5	a)	Identify the body fuels and explain about its energy content.	**06**
	b)	List out the important functions of the cell membrane.	**05**
	c)	Discuss the concept of feedback and how is it used to control the body?	**09**

UNIT - IV

6	a)	Summarize the sequence of events that occur during the neuromuscular transmission.	**12**
	b)	Explain the properties of skeletal muscle.	**08**

UNIT - V

7	a)	Derive an expression for the sound transmitted and reflected when it travels from one medium to another.	**08**
	b)	Explain the basic elements of speech.	**06**
	c)	Explain the major modes of retinal damage.	**06**

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