U.S.N.										

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 Engineering **Duration: 3 hrs.**
Course Code: 23MD3ESHBS **Max Marks: 100**
Course: Human Biological Systems

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	CO	PO	Marks
1	a)		Illustrate the physiological steps involved in controlling the body temperature	*CO1*	*PO1*	**08**
	b)		Elaborate on the different ways incorporated by the cell to transport the substances across its membrane.	*CO1*	*PO1*	**12**
			OR			
2	a)		Enumerate the factors influencing BMR.	*CO1*	*PO1*	**05**
	b)		Define Respiratory quotient and specify the method used to measure it.	*CO1*	*PO1*	**07**
	c)		Elaborate on the different methods used to determine the metabolic rate.	*CO1*	*PO1*	**08**
			UNIT - II			
3	a)		Discuss the generation and features of various waves of a normal electrocardiogram.	*CO2*	*PO2*	**10**
	b)		Outline the main factors determining the heart rate.	*CO2*	*PO2*	**05**
	c)		What inference is drawn from Frank Starling mechanism?	*CO2*	*PO2*	**05**
			OR			
4	a)		Summarize the events involved in the pumping action of heart.	*CO2*	*PO2*	**10**
	b)		Discuss the mechanism used by the body to control heart rate.	*CO2*	*PO2*	**10**
			UNIT - III			
5	a)		Discuss the position and gross structure of lungs.	*CO3*	*PO2*	**10**
	b)		Discuss the signs and symptoms of the following diseases i) Asthma ii) Sleep Apnea iii) Hypoxia iv) High Altitude Sickness v) Pulmonary Edema	*CO3*	*PO2*	**10**
			UNIT - IV			
6	a)		Distinguish between skeletal and smooth muscles.	*CO3*	*PO1*	**08**

		b)	Illustrate the generation of action potential in a myelinated and unmyelinated nerve fibre.	*CO3*	*PO1*	**12**
			UNIT - V			
	7	a)	Discuss the processes involved in the formation of urine.	*CO4*	*PO2*	**10**
		b)	Identify the hormones produced by the anterior pituitary gland and specify its functions.	*CO4*	*PO2*	**06**
		c)	Enumerate the main types of cells in the pancreatic islets and specify their secretion.	*CO4*	*PO2*	**04**

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