U.S.N.										

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

Autonomous Institute Affiliated to VTU

January 2024 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: ES – Cluster Elective **Duration: 3 hrs.**
Course Code: 19ML7CE2BD **Max Marks: 100**
Course: Biomedical Devices

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)		Elaborate the sources of biomedical signals used for extracting information on a biological system under investigation.	*CO1*	*PO1*	**10**
	b)		The primary purpose of medical instrumentation can be related electronic system to determine the presence of some physical quantity. Justify this statement with a neat block diagram.	*CO1*	*PO1*	**10**
			OR			
2	a)		The medical device regulations are required in medical instrumentation industry. What is its significance? Mention the type of standards for medical devices.	*CO1*	*PO2*	**08**
	b)		Enumerate the general constraints in design of medical instrumentation systems	*CO1*	*PO2*	**12**
			UNIT - II			
3	a)		Describe the Electronic reliability in medical devices.	*CO2*	*PO4*	**06**
	b)		Bring out the salient point that causes failures in medical devices.	*CO2*	*PO4*	**06**
	c)		Define the product definition process. With a block diagram show the multiphased process of defining a product.	*CO2*	*PO4*	**08**
			OR			
4	a)		What would be the fundamental insight of QFD from an engineering perspective? Explain the horizontal portion of the matrix contains information relative to customer.	*CO2*	*PO3*	**12**
	b)		List the issues addressed on the Failure mode and effects analysis form.	*CO2*	*PO4*	**08**
			UNIT - III			
5	a)		Which are the three most common theories of liability? Discuss about negligence.	*CO3*	*PO3*	**08**

		b)	Brief the product specification as a first step in the process of transforming produce ideas into approved product development efforts.	*CO3*	*PO3*	**08**
		c)	Write a note on anthropometry.	*CO3*	*PO1*	**04**
			UNIT - IV			
	6	a)	Define software quality metrics. What are the six primary uses of metrics?	*CO3*	*PO2*	**12**
		b)	Explain the six sigma. Which are the five steps in this process? Describe the design for six sigma.	*CO3*	*PO2*	**08**
			UNIT - V			
	7	a)	What are the types of testing? Explain.	*CO3*	*PO3*	**10**
		b)	Describe environmental testing and the factors included in environmental testing.	*CO3*	*PO3*	**10**

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