U.S.N.										

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

Autonomous Institute Affiliated to VTU

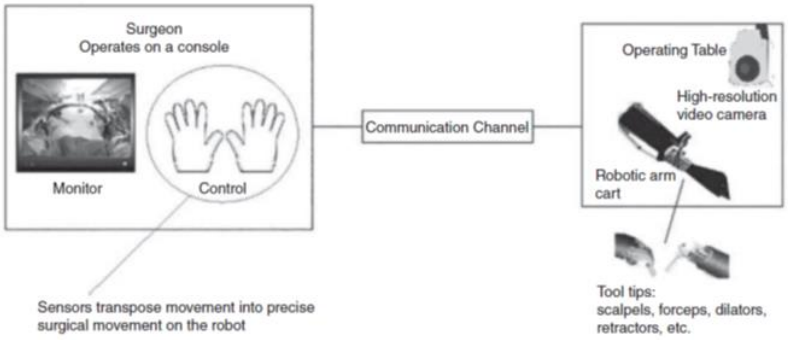
January 2024 Semester End Main Examinations

Programme: B.E. **Semester: VII**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code:19ET7OE2SH **Max Marks: 100**
Course: Sustainable Health with Technological Advance

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)		With a neat diagram, discuss the simplified structure of a typical data packet that contains the actual health	*CO1*		**08**
	b)		List challenges that different parties face in order to serve patients with an example. List all the parties involved in this program	*CO1*		**06**
	c)		Illustrate with a neat diagram, the integration of three distinct networks to create a comprehensive telemedicine system, showcasing their interconnectedness	*CO2*	*PO1*	**06**
			UNIT - II			
2	a)		Illustrate with a neat diagram, the network infrastructure linking the hospital to many entities and the role of Broadband Wireless Access.	*CO2*	*PO1*	**08**
	b)		Explain with a neat block diagram, the communication system under the influence of noise	*CO1*		**06**
	c)		Disuss with neat diagrams, guided versus unguided transmission medium	*CO1*		**06**
			OR			
3	a)		Discuss the use of RFID tag in glucose meter device and the technical challenges in using RFID.	*CO1*		**08**
	b)		RFID has been extensively used for baby monitoring. A hospital has requested your company to design a baby safety system. Propose an optimum system to cater to different needs	*CO3*	*PO2*	**06**
	c)		Calculate the number of levels L if number of bits per baud is 3. Also calculate the bit rate Rb if the bandwidth of the channel is 25kHz. If S/N is 30dB, calculate the bit rate Rb for a channel bandwidth of 3.1KHz	*CO2*	*PO1*	**06**

			UNIT - III			
	4	a)	Analyze the effects of Electromagnetic Interference on Medical Instrument with a real life example	*CO2*	*PO1*	**08**
		b)	Analyze the diagram shown in figure with a real life example  **Fig 4b**	*CO3*	*PO2*	**06**
		c)	Illustrate with a neat diagram, a simplified version of a typical hospital where several departments are linked together by a network	*CO2*	*PO1*	**06**
			OR			
	5	a)	With a neat diagram, explain the infrastructure of a basic BAN for monitoring a cardiac patient under supervised recovery	*CO1*		**08**
		b)	Analyze the Fig 5b and support your analysis with a real life example  **Fig 5b**	*CO2*	*PO1*	**06**
		c)	Discuss the issues that need to be addressed in emergency and rescue system	*CO1*		**06**
			UNIT - IV			
	6	a)	A person is suffering from hyperthermia or hypothermia. Analyze the parameter to be measured using traditional methods and clearly mention its disadvantages. Suggest a reliable method to measure the same, indicating its accuracy.	*CO3*	*PO2*	**08**
		b)	Discuss the problems associated with keeping the history of a patient using log card. Analyse the steps involved in retrieving the data quickly and reliably using data mining.	*CO3*	*PO2*	**06**
		c)	Analyze the role of Virtual Reality (VR) and Augmented Reality (AR) in healthcare with a real-life example.	*CO3*	*PO2*	**06**

			UNIT - V			
	7	a)	Analyze the additional features of a smartphone used for assistive care in real life scenario.	*CO3*	*PO2*	**08**
		b)	Analyze the Risks, Myths, and Misperceptions about medical radiation.	*CO3*	*PO2*	**06**
		c)	Analyze the major advantages of wireless telemedicine with a real life example.	*CO2*	*PO1*	**06**

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