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

Autonomous Institute Affiliated to VTU

February / March 2023 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

Date: 22.02.2023

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) Define Telemedicine. Show subsets of telemedicine connecting patients to medical professionals. 08
	b) What is Tele-surgery? List the basic requirements that must be fulfilled to perform a simple operation. 06
	c) Analyze the data as a sequence of “packet” that contains health related information connected between human and devices. 06

UNIT - II

2	a) Briefly discuss Conducting versus Optical Cables with diagrams. 08
	b) Illustrate with a neat diagram, the Network infrastructure linking the hospital to many entities and the role of Broadband Wireless Access. 06
	c) Discuss the sensors that support M- health and the challenges possessed by M- health 06

UNIT - III

3	a) Define a bit and the baud rate. Calculate the bit and baud rate for the following case: a telephone channel that transmits voice data between 300 Hz (minimum frequency) and 3400 Hz (maximum frequency) has a bandwidth of 3.1KHz. So, what is the relationship between the channel bandwidth and data transmission speed? 06
	b) Explain Bluetooth technology and its use in Healthcare with an example. 06
	c) Illustrate the application of RFID in Telemedicine with an example. 08

OR

4	a) Analyze with a neat diagram, the case of a radiological information system. 06
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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.

b) Summarize the steps in performing a robotic surgery in perspective of Information and Communication Technology. Mention its advantages. **08**

c) Discuss the issues that need to be addressed in health monitoring case study: Emergency and Rescue system. **06**

UNIT - IV

5 a) With a neat diagram, explain the infrastructure of a basic BAN for monitoring a cardiac patient under supervised recovery **08**

b) How computer assists in therapy of cancer chemotherapy protocol adviser, the case study of a radiology information system? **08**

c) Give some application examples of smart wearable integration devices **04**

OR

6 a) With a neat block diagram, explain medical information system. **08**

b) 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 **06**

c) Discuss pulse oximeter to measure oxygen saturation with a neat diagram **06**

UNIT - V

7 a) With a block diagram explain a Tele-care network. **10**

b) Elaborate on present and future scope for telecare for senior citizens and specialty that focuses on health care of elderly people. **10**
