

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**

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**
