

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2014 COURSE)

B.Tech.Sem - VIII ELECTRONIC : WINTER- 2022

SUBJECT : BIOMEDICAL ENGINEERING

Day : Friday

Time : 02:30 PM-05:30 PM

Date : 25-11-2022

W-13402-2022

Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.

**Q.1** How bio-potential is measured in ECG, EEG and EMG. Explain their waveform pattern in detail with respect to human body. (10)

**OR**

- a) Explain cell structure in detail with waveform. (06)
- b) How does Cardiovascular system works, explain? (04)

**Q.2** a) Define Electrocardiography and distinguish in gram, graph and graphy. (04)  
b) Explain relationship between ECG, PCG and B.P. w.r.t time. (06)

**OR**

Compare in detail with direct and indirect method of B.P. measurement and their benefits to the diagnostic purpose to the doctor. (10)

**Q.3** a) Why and when defibrillator is required? Why D.C. defibrillator is more preferred over A.C. defibrillator. (05)

- b) Draw tree chart of pacemaker. What is the benefit of Asynchronous P-wave inhibited pacemaker. (05)

**OR**

Describe the electrodes used in defibrillator and pacemaker with neat sketches. (10)

**Q.4** What is patient monitoring? Enlist the physiological parameters to be monitored in ICU and explain its importance with suitable diagram. (10)

**OR**

Name the department where ventilator is used in the hospital. What are the modes of ventilators? Discuss any four modes of ventilator with suitable diagram. (10)

**Q.5** What is Beer-Lambert Law? Enlist the differences and similarities between a Colorimeter and Spectrophotometer. Draw the schematic diagram of spectro photometer and explain. (10)

**OR**

How an autoanalyzer is useful? Draw the auto analyzer setup and describe the parts of autoanalyzer. (10)

**Q.6** What is the importance of physiotherapy? Explain the types of physiotherapy in short and elaborate one of the technique in detail. (10)

**OR**

What are the physiological effects of electric current on the human body? Define the range of current stating normal and danger zones and label it in diagram. (10)

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