

ET501M3 - Bio-Medical Electronics

P. Pages : 2

Time : Three Hours



GUG/W/24/13918

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Describe with neat diagram the Anatomy of heart along with its property. **8**
- b) Discuss the use of flow transducer for measurement of Blood flow. **8**

OR

2. a) List the various types of temperature sensor explain any one in details. **8**
- b) Describe with the help of a block diagram the main elements in a patient monitoring system. **8**
3. a) Draw the diagram for electrode-tissue interface for surface electrodes used with electrode jelly. **8**
- b) What are the various types of electrodes used for recording of ECG signals? Give a brief description of at least 3-types of electrodes. **8**

OR

4. a) Write a short notes on the following: **8**
 - i) Bio potential Amplifier
 - ii) Bio potential Electrodes
- b) Illustrate with the help of a diagram the origin of the Electromyogram signal and give its characteristics values in terms of amplitude and Frequency. **8**
5. a) Discuss Impedance Pneumography in details with suitable diagram. **8**
- b) Define Blood Pressure? Discuss the types of Blood Pressure and explain any one of them. **8**

OR

6. a) State different types of method used to measure respiration rate and explain any one of them. **8**
- b) Describe the procedure for Blood temperature measurement. **8**

7. a) Discuss the importance of Defibrillator protection circuit in each recorder. 8
- b) What are programmable pacemakers and list the advantages and disadvantages. 8

OR

8. a) Differentiate between pacemakers and Defibrillator. 8
- b) How the ultrasound generated? Explain the role of frequency, focusing and active element diameter. 8
9. a) Describe why it is important to maintain the integrity of grounding system for protection of micro shock. 8
- b) Write a short notes on the following: 8
- i) Electric shock
 - ii) Micro shock
 - iii) Macro shock

OR

10. a) What is the Physiological Effect of Electric current? Discuss various methods of accident prevention. 8
- b) Write a short notes on Artificial kidneys in details with the help of neat diagram. 8
