

B.E. (Instrumentation Engineering) Model Curriculum Semester-VI
IN602M - Biomedical Instrumentation

P. Pages : 2

Time : Three Hours



GUG/W/24/14029

Max. Marks : 80

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- Notes :
1. Same answer book must be used for each section.
 2. All questions carry marks as indicated.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Illustrate your answers wherever necessary with the help of neat sketches.

1. A) List the problems encountered in measuring living system. Explain in detail. 8
- B) Define following static and dynamic characteristics- Accuracy, precision, Hysteresis, Sensitivity, Linearity, Resolution, Drift, Lag, Speed of response, Fidelity, Dynamic error. 8

OR

2. A) Define Man-Instrument system? Explain in detail components of Man-Instrument system with suitable block diagram. 8
- B) Elaborate the term intelligent Medical-Instrument system. 8
3. A) Write short note- 8
- a) Resting potential
- b) Action potential
- B) Explain bioelectric potential generated by heart with its typical waveform. 8

OR

4. A) Explain in detail various types of electrodes used for ECG measurement. 8
- B) Discuss PH electrode with neat sketch. 8
5. A) Explain in details methods of Non-invasive BP measurement technique. 8
- a) Auscultatory method with Korotkoff sounds.
- b) Oscillometric method with suitable graphical representation.
- c) Ultrasonic doppler method.
- d) Tonometry method.

B) Explain basic principle of Electromagnetic blood flow meter with neat sketches. 8

OR

6. A) Draw a neat schematic diagram of blood flow instrumentation based on Doppler principle and explain its functions. 8

B) Write short notes on: 8

a) Pacemaker

b) Defibrillator.

7. A) List out specification of EEG machine and brain wave classification with its frequency and occurrence. 8

B) What is Plethysmograph? Explain full body plethysmograph with illustrations. 8

OR

8. A) Explain the graph related to volume and capacities of lung. Give terms related with it. 8

B) State graphical representation of volume and capacities of lungs. 8

9. A) Explain the graph related to volume and capacities of lung. Give terms related with it. 8

B) State graphical representation of volume and capacities of lungs. 8

OR

10. A) Illustrate the working of spirometer with the experimental setup. 8

B) Write short notes on- 8

a) Pacemaker

b) Defibrillator.
