

M.Sc. F.Y. (Electronics) (New CBCS Pattern) Semester - II  
**PSCELET06 - Paper-II : Biomedical Instrumentation**

P. Pages : 2

Time : Three Hours



**GUG/S/23/11200**

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw neat and label diagrams wherever necessary.

**Either:**

1. a) What is bioelectrical signal? How does it generate in human body? 8
- b) Draw the block diagram of man instrument system for biomedical application and explain it. 8

**OR**

- c) Explain any two transducers for body temperature measurement. 8
- d) What is biometrics? Explain operation of biometric system. 8

**Either:**

2. a) Draw block diagram of electronic recording system and explain the function of each block. 8
- b) What is Preamplifier? Discuss the role of preamplifier in recording system. 8

**OR**

- c) What is noise in recording system? Explain type of noise. 8
- d) Explain the importance of oscilloscope in medical display system. Explain the concept of storage oscilloscope. 8

**Either:**

3. a) Explain the working of MRI. With suitable diagram. 8
- b) What is leakage current? 8

Explain:

- i) Enclosure leakage current.
- ii) Earth leakage current.
- iii) Patient leakage current.

**OR**

- c) Describe working of x-ray tomography with suitable diagram. 8
- d) Give the block diagram of Foetus monitoring system and explain its working. 8

**Either:**

- 4. a) What is ECG? Draw block diagram of ECG machine and explain it. 8
- b) Explain the principle working of hemodialysis machine. 8

**OR**

- c) Explain EEG machine with suitable block diagram. 8
- d) Explain any two types of implantable peacemaker. 8
- 5. a) Explain the LVDT as a pressure transducer. 4
- b) Write a note on multichannel display system. 4
- c) Write precautions to minimize electronic shock hazard. 4
- d) Write a note on EMG. 4

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