



MP-3602

\* Total Marks : 100

Con. 6182-11.

(3 Hours)

- N.B. :** (1) Question No. 1 is compulsory. *Sem-VI (Biomedical Instru-II)*  
 (2) Attempt any four questions out of remaining six questions.  
 (3) **Figures** to the right indicate full marks. *(810M) 5/12/11*  
 (4) Assume **suitable** data wherever **necessary**.  
 (5) Draw sketches / diagrams wherever **necessary**.  
 (6) Use legible handwriting. Use blue / black ink.

1. (a) Draw using suitable diagram of Cardiac muscle action potential. [05]  
 (b) Explain how nerve action potential is generated. [05]  
 (c) Explain the concept of Biotelemetry. [05]  
 (d) Draw ECG waveform recorded in LEAD II configuration and label it. [05]
2. (a) Explain using block diagram of basic arrhythmia monitoring system [10]  
 (b) Explain using block diagram of Ultrasonic doppler-shift based Fetal heart rate measuring system. [10]
3. (a) Explain using suitable diagram 12 lead electrode system in ECG. [10]  
 (b) Explain how instantaneous heart rate is measured. [10]
4. (a) Explain indirect method of BP measurement. [10]  
 (b) Explain using suitable diagram 10/20 electrode system in EEG. [10]
5. (a) Explain using suitable block diagram Biotelemetry transmitter. [10]  
 (b) Explain using suitable block diagram EEG machine. [10]
6. (a) Explain with suitable diagram instrumentation amplifier. [10]  
 (b) Explain using block diagram 3 channel telephone transmitter. [10]
7. Write short notes on : (Any Four) [20]
  - (a) Skin resistance measurement
  - (b) Micro and macro shock.
  - (c) Phonocardiography
  - (d) ECG electrodes