2008-PUNJAB TECHNICAL UNIVERSITY

B.E / B.TECH ELECTRICAL AND ELECTRONICS ENGINEERING

BIO-MEDICAL INSTRUMENTATION

TIME-3HOUR
MARKS-100

PART A [10*2=20]

1. What are resting and action Potentials?

2. What is meant by central nervous system?

3. Distinguish betwen metallic microelectrode and non-metallic microelectrode

4. State the requirements for physiological amplifiers?

5. List the different methods used for direct measurement of blood pressure?

6. What do chemo-receptors, PCO2 sensors do in human system?

7. What is lithotripsy?

8. State any two problem which arises due to leakage currents in an equipment

9. What is the purpose of Audiometer?

10. What is the function of synchronous pacemaker?

PART B [8*10=80]

11. a. i. Describe the generation and features of action potential.

ii. Explain the function of human respiratory system

or

b. i. Explain the working of piezoelectric transducer as arterial pressure sensor

ii. Explain how piezoeletric transducer produces ultrasonic waves

12. a. i. Draw a buffer amplifier circuit and explain its working

ii. Explain the working of chopper amplifer

or

b. Explain the working of i. ECG recorder ii. EMG system

13. a. With suitable figure explain how PH, PCO2,PO2 are measured

or

b. i. Explain any one method of measuring blood pressure

ii. Write a note on Plethysmography

14. a.i. Explain the working of X-ray machine

ii. Write a note on endoscopy

or

b.i. Explain the different elements involved in biotelemetry circuit.

ii. Explian about patient monitoring system.

15. a. With neat diagram, describe the workng of i. Heart lung machine ii. Dializer

or

b. Explain briefly any one type of pacemaker circuit and defibrillator circuit