

- Q.24 Explain pressure bio sensors.
Q.25 Explain the working of piezoelectric transducer.
Q.26 Write a short note on the QRS wave.
Q.27 Explain smart bio sensor in a short note.
Q.28 Write a short note in basic recording system.
Q.29 Explain the instrumentation amplifier in a short note.
Q.30 Write a short note on the inductive type displacement sensor.
Q.31 Write a short note the electrodes of EEG.
Q.32 State two merits and demerits of LVDT.
Q.33 Write a short note on the ink jet recorders.
Q.34 Explain passive transducer in a short note.
Q.35 Write a short note on infrared thermometer.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain the working of stethoscope and draw its block diagram.
Q.37 Draw the block diagram of digital signal processing and explain its working.
Q.38 What is micro electrode? Explain its various types.

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5th Sem / Med. Eltx
Subject:- Biomedical Sensors and Transducers (BMST)

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 In floating electrodes metal electrode does not make direct contact with the skin.
a) True b) False
- Q.2 Source of bioelectric potential is in nature.
a) electronic b) electric
c) ionic d) mechanical
- Q.3 Displacement sensors can also be used to measure objects thickness, height and weight
a) True b) False
- Q.4 Before placing the electrodes the skin should be _____
a) wet b) dry
c) hairy d) oily

Q.5 Which of the following metal is preferred for manufacturing micro electrodes?

- a) Rubber
- b) Tungsten
- c) Plastic
- d) Copper

Q.6 LVDT has

- a) one primary coil and two secondary coils
- b) two primary coil and one secondary coil
- c) one primary coil and one secondary coil
- d) two primary coil and two secondary coils

Q.7 _____ are devices which convert one form of energy into another.

- a) opamp
- b) electrodes
- c) impulses
- d) transducers

Q.8 Which of the following is considered to be the primary pacemaker of the heart?

- a) purkinje fibres
- b) atrio-ventricular node
- c) sino-atrial node
- d) bundle of his

Q.9 _____ converts mechanical displacement into electric signal.

- a) LVDT
- b) Thermometer
- c) Anemometer
- d) Strain Gauge

Q.10 What is the International System of Length used to measure displacement

- a) Meter
- b) Kilo meter
- c) Centimeter
- d) Yards

SECTION-B

Note: Objective type questions. All questions are compulsory. $(10 \times 1 = 10)$

Q.11 Write the definition of measurand.

Q.12 Define Sensor.

Q.13 Write one component of basic recording system.

Q.14 Define analog signal.

Q.15 Write one advantage of instrumentation amplifier.

Q.16 Write one property of biomaterial.

Q.17 Define electrode.

Q.18 Expand EEG.

Q.19 Write one use of bio sensor.

Q.20 Write one use of bio materials.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. $(12 \times 5 = 60)$

Q.21 Enlist five uses of bio materials.

Q.22 Write a short note on the body surface electrode.

Q.23 Draw a well labelled diagram of needle electrode.