Q.26 Draw the block diagram of digital signal processing system.

Q.27 Write a short note on the biosensors.

Q.28 Explain bio materials a short note.

Q.29 Write a short note on the active transducers.

Q.30 Explain the working of photoelectric transducers in short note.

Q.31 Define the principle of thermistor in a short note.

Q.32 Summarize the basic details of differential amplifier in a short note.

Q.33 Write five functions of any one Biomedical Instrumentation system.

Q.34 Write a short note on the needle electrodes.

Q.35 Explain direct writing recorders in a short note.

## SECTION-D

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

Q.36 Describe the working principle of ECG electrodes with its diagram.

Q.37 Explain biomedical electrodes and its types in detail.

Q.38 What are displacement type sensors? Explain any two types of displacement type sensors.



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**5th Sem. / Medical Electronics**

**Subject:- Biomedical Sensors and Transducer (BMST)**

Time : 3Hrs. M.M. : 100

## SECTION-A

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

Q.1 A device which converts one form of energy to another form of energy is known as

a) Transducer b) Voltage regulator
c) Sensor d) None

Q.2 The bio materials can be

a) Natural
b) Synthetic
c) Natural plus synthetic
d) All of the above

Q.3 Digital Thermometer uses

a) Pressure sensor b) Temperature sensor
c) Flow sensor d) None of the above

Q.4 The ECG wave form is

a) ABCDE b) IJKLM
c) PQRST d) WXYZ

Q.5 EMG records the electrical signal produced by

a) Nerves b) Muscles

c) Bones d) Heart

Q.6 _____ is not a non-contract temperature sensor device

a) Thermocouple

b) Thermistor

c) Resistance Thermometer

d) Pressure Transducer

Q.7 The advantages of optical fiber sensor are

a) Light weight b) Small size

c) Passive d) All of the above

Q.8 _____ is a part of heart

a) Atrium b) Pancreas

c) Spleen d) None of the above

Q.9 The signals form the heart are captures by

a) EEG b) EMG

c) ECG d) None of the above

Q.10 Normal systolic blood pressure is

a) 150mmHg b) 90mmHg

c) 120mmHg d) 70mmHg



## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Write the full form of BMST.

Q.12 Write one example of transducer.

Q.13 Write one use of strain gauge transducer.

Q.14 Write full form of EMG.

Q.15 Give one advantage of optical fiber sensors.

Q.16 Write one property of ultrasound.

Q.17 Write one importance of cardiovascular measurement.

Q.18 Give one example of bio material.

Q.19 Define measurement.

Q.20 Expand LVDT.

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain strain gauge transducer in a short note.

Q.22 Write a short note on the physiological transducers.

Q.23 State principle of electrode - electrolyte interface.

Q.24 Write a short note on the biomedical electrodes.

Q.25 Explain the principle of thermocouple on a short note.