Q.29 Explain Direct writing recorder.

Q.30 Explain Inkjet recorder with its working diagram.

Q.31 Write a note on sphygmomanometer measurement based instrumentation sensor with its block diagram.

Q.32 Write a note on thermocouple.

Q.33 Write a note on Digital recorder.

Q.34 Write 5 advantages & disadvantages of DSP.

Q.35 Why surface electrodes are preferred over needle electrode?

SECTION-D

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

Q.36 Write a note on role of transducer & sensor biomedical engineering.

Q.37 What kind of materials are used for Amputee person, explain it with detail.

Q.38 Write a note on working principle of electrodes along with application & type.

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5th Sem./ Branch : Medical Electronics

Subject:- BMST (Biomedical sensors & transducers)

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 A device that converts one form of energy into another form of energy of energy is known as :

a) Transducer b) transformer

c) time d) none of these

Q.2 Two types of transducers are:

a) Primary b) Secondary

c) Both d) none of these

Q.3 The three main characteristics of transducers are:

a) Sensitivity b) Drift

c) Threshold d) All of these

Q.4 Two main types of microelectrodes are:

a) Metal micro electrodes

b) Micropipette

c) both

d) none of these

Q.5 Sensors can be classified as:

a) According to power
b) Objective
c) Principle of operation
d) All of these

Q.6 LVDT is a type of:

a) Temperature transducer
b) pressure
c) displacement type of transducer
d) none of these

Q.7 Types of electrodes used for EEG are:

a) Surface b) needle
c) both d) none of these

Q.8 Main parts of recording systems are:

a) Electrodes/transducers
b) Signal conditioner
c) writing system
d) All of these

Q.9 Digital signals are:

a) Discrete time b) Discrete value
c) Both d) none of these

Q.10 Cardiovascular measurement is related to:

a) Brain b) Kidney
c) Heart d) none of these

SECTION-B

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

Q.11 Write two examples of transducer.
Q.12 Write name of two type of micro-electrode.
Q.13 Define sensor.
Q.14 Write name of type of bio-sensor.
Q.15 Define Piezo-electric transducer.
Q.16 Draw LVDT peak output.
Q.17 Define smart sensor.
Q.18 Define optical fiber sensor.
Q.19 Define recording system.
Q.20 Write name of organ for which cardiovascular measurement is to be done.

SECTION-C

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

Q.21 Why sensors are used in biomedical field, explain it.
Q.22 Write differences between metal microelectrode & micropipette.
Q.23 Write a note on types of sensors according to principle of operation.
Q.24 Explain strain gauge pressure transducer with gauge factor.
Q.25 Write a note on EMG, EEG electrodes.
Q.26 Why we need smart sensor?
Q.27 Write a note one basic recording system.
Q.28 Elaborate instrumentation amplifier.