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Q. P. code 40278

P2

1. (a) Capacitive microphone sensor diagram– 2 marks
Capacitive microphone sensor explanation– 3 marks
 - (b) Internal electrodes diagram– 2 marks
Internal electrodes explanation – 3 marks
 - (c) pH electrode diagram– 2 marks
pH electrode explanation– 3 marks
 - (d) First-order system explanation– 2 marks.
First-order system example– 3 marks.
2. (a) Explanation of the basic principle of strain gage– 3 marks.
Deriving the equation for gauge factor of strain gage– 7 marks
 - (b) Diagrams for various laws governing the thermocouple – 2 marks.
Explanation for various laws governing the thermocouple – 6 marks.
Giving advantages and disadvantages of thermocouples– 2 marks.
3. (a) DSO diagram– 04 marks.
DSO explanation– 06 marks.
 - (b) Construction of LVDT diagram– 02 marks
Construction of LVDT explanation– 02 marks.
Circuit diagram of LVDT– 02 marks
Circuit diagram of LVDT explanation– 04 marks.
4. (a) Generalized medical instrumentation system diagram– 04 marks.
Generalized medical instrumentation system explanation– 06 marks.
 - (b) Electrode-skin equivalent circuit diagram– 04 marks.
Electrode-skin interface equivalent circuit explanation– 06 marks.
5. (a) What is Immunosensor– 03 marks.
Explanation of one example of Immunosensor– 07 marks.
 - (b) Dual slope integrating type digital voltmeter block diagram– 04 marks.
Dual slope integrating type digital voltmeter explanation– 06 marks.

6 Attempt **any four** of the following:

(a) Any one medical application of fiber optics– 05 marks.

(b) True RMS responding voltmeter diagram– 02 marks.

True RMS responding voltmeter explanation– 03 marks.

(c) ISFET diagram– 02 marks.

ISFET explanation– 03 marks.

(d) Voltage versus current characteristics of NTC thermistor diagram– 2 marks.

Voltage versus current characteristics of NTC thermistor explanation– 3 marks.

(e) Classification of biosensor– 05 marks.

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