

AF-124

April-2018

B.Sc., Sem.-VI**311 : Physics & Electronics
(Instrumentation)**

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions are compulsory and carry equal marks.
(2) The symbols have their usual meanings.

1. (a) Explain construction and working principle of strain Gauge transducer. What is Gauge factor ? Give advantage of the wire strain Gauge. 7

OR

Explain the construction and working of LVDT (Linear Variable Differential Transformer). Give the advantage and application of LVDT.

- (b) What is thermistor ? Explain (1) construction (2) Response time. Give the advantage and application of thermistor. 7

OR

What is transducer ? Describe the detail classification of transducer based on various aspects.

2. (a) Give the functions of Instruments. Compare electrical and electronic instruments and give the essentials of electronics instruments. 7

OR

Which two points must be kept in mind while measuring current flowing in a circuit ? With the proper circuit diagram explain how basic meter can be converted to D.C. Ammeter.

- (b) What are the measurement standards of instruments ? Explain with proper diagram construction and principle of operation of Basic meter. 7

OR

Which two points must be kept in mind while measuring voltage across a component in the circuit ? With the proper circuit diagram explain how basic meter can be converted to D.C. Voltmeter.

3. (a) With the help of neat block diagram explain the working of Laboratory square and pulse wave generator. 7

OR

With the help of neat block diagram explain the working of AF sine and square wave generator.

- (b) Give classifications of the signal generators. Describe the conventional standard signal generator using neat schematic diagram. 7

OR

With the help of neat block diagram explain Random noise generator and sweep generator.

4. (a) Explain inductive and capacitive pressure transducer. 7

OR

Write note on piezoelectric transducer and Resistance temperature detectors.

- (b) Using proper diagram explain C.R.O. 7

OR

Using proper diagram explain C.R.T.

5. Answer the following questions in short : 14

- (1) Give the definition of transducer.
- (2) Give principle disadvantage of piezoelectric transducer.
- (3) Give any one name of acoustical transducer.
- (4) Find the sensitivity of 0-1 mA meter.
- (5) Define analog instrument.
- (6) A high input-resistance voltmeter has high/low loading effect.
- (7) An ac instrument using a half wave rectifier reads how many percentage of the D.C. value ?
- (8) What is an electromagnetic flow meter ?
- (9) What are the difference between AC and DC voltmeter ?
- (10) What do you mean by a loading effect of voltmeter ?
- (11) How is the function generator different from signal generator ?
- (12) What do you mean by loading effect of voltmeter ?
- (13) Heart of CRO.
- (14) Define a gauge factor for strain gauge.