4TH SEM./EEE./ELE./ 2024(S)

Th-3 Electrical Measurement & Instrumentation

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right-hand margin indicate marks

1. Answer **All** questions 2 x 10
   a. State the types of measuring instruments.
   b. Write Two differences between MI and PMMC type Instrument.
   c. Define tolerance.
   d. What is the Hall effect?
   e. Write the cause of creeping in 1-Φinduction type energy meter.
   f. What is CRO?
   g. State the types of errors in the dynamometer wattmeter.
   h. Define Megger with its application.
   i. What are the different types of piezoelectric materials?
   j. Name the different types of Tests performed in energy meter.

2. 6 x 5
   a. How medium resistance is measured by Wheat Stone Bridge method?
   b. Explain the operation of resonance type frequency meter.
   c. Give a brief classification of transducers.
   d. Explain damping arrangement in indicating type instrument.
   e. How will you use a PMMC instrument which gives full deflection at 100mV potential difference & 10mA current as,
      - Ammeter (0-10) Amp range.
      - Voltmeter (0-250) V range
   f. Explain the principle of capacitive transducer with change in overlapping area.
   g What is a thermistor? State some applications.

3 Explain the construction & working principle of 1-Φ induction type energy meter with a neat diagram. 10

4 Explain the principle of operation of megger. State the applications. 10

5 Explain the principle of operation of CRO with the block diagram. 10

6 What is LVDT? Explain its working principle with a neat diagram. Also, state its applications. 10

7 Describe the construction, and principle of operation of dynamometer-type wattmeter. 10

4TH SEM./EEE./ELE./ 2024(S)

Th-3 Electrical Measurement & Instrumentation

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right-hand margin indicate marks

1. Answer **All** questions 2 x 10
   a. State the types of measuring instruments.
   b. Write Two differences between MI and PMMC type Instrument.
   c. Define tolerance.
   d. What is the Hall effect?
   e. Write the cause of creeping in 1-Φinduction type energy meter.
   f. What is CRO?
   g. State the types of errors in the dynamometer wattmeter.
   h. Define Megger with its application.
   i. What are the different types of piezoelectric materials?
   j. Name the different types of Tests performed in energy meter.

2. 6 x 5
   a. How medium resistance is measured by Wheat Stone Bridge method?
   b. Explain the operation of resonance type frequency meter.
   c. Give a brief classification of transducers.
   d. Explain damping arrangement in indicating type instrument.
   e. How will you use a PMMC instrument which gives full deflection at 100mV potential difference & 10mA current as,
      - Ammeter (0-10) Amp range.
      - Voltmeter (0-250) V range
   f. Explain the principle of capacitive transducer with change in overlapping area.
   g What is a thermistor? State some applications.

3 Explain the construction & working principle of 1-Φ induction type energy meter with a neat diagram. 10

4 Explain the principle of operation of megger. State the applications. 10

5 Explain the principle of operation of CRO with the block diagram. 10

6 What is LVDT? Explain its working principle with a neat diagram. Also, state its applications. 10

7 Describe the construction, and principle of operation of dynamometer-type wattmeter. 10