15EC35

Third Semester B.E. Degree Examination, Jan./Feb. 2023
Electronic Instrumentation

Time: 3 hrs.   Max. Marks: 80

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a. Define i) Accuracy   ii) Precision   iii) Resolution   iv) Significant figures. (06 Marks)
    b. Explain different types of Static Errors. (06 Marks)
    c. A basic D'Arsonval movement with a full scale deflection of 50 μA and internal resistance of 500Ω is used as a voltmeter. Determine the value of multiplier resistance needed to measure a voltage range of 0 – 10V. (04 Marks)

OR

2   a. With a neat block diagram, explain true RMS reading voltmeter. (08 Marks)
    b. Explain AC voltmeter using full wave rectifier. (04 Marks)
    c. What are the limitations of thermocouple? (04 Marks)

Module-2

3   a. Explain Ramp type DVM, with a neat block diagram. (08 Marks)
    b. Explain successive approximation DVM, with neat block diagram. (08 Marks)

OR

4   a. A 4½ digit voltmeter is used for Voltage measurement i) Find its resolution.
       ii) How would 12.98 V be displayed on a 10V range?
       iii) How would 0.6973 be displayed on 1V and 10V ranges? (06 Marks)
    b. Explain the working of digital frequency meter with neat block diagram. (06 Marks)
    c. What are the advantages of digital meters over analog meters? (04 Marks)

Module-3

5   a. Explain Simple CRO, with neat block diagram. (08 Marks)
    b. Explain the working of storage oscilloscope. (08 Marks)

OR

6   a. Explain the working of laboratory type single generator, with neat diagram. (08 Marks)
    b. Explain the working of function generator, with neat block diagram. (08 Marks)

Module-4

7   a. Explain the working of field strength meter. (06 Marks)
    b. Explain the Q meter, with neat diagram. (06 Marks)
    c. Explain Analog pH meter. (04 Marks)

OR

8   a. Explain unbalanced wheat stone bridge and derive the expression for galvanometer current. (08 Marks)
    b. Explain Wagner's Earth connection. (08 Marks)

Module-5

9   a.   Define Transducer. What are the types of transducer?   (04 Marks)
     b.   Explain Resistance thermometer, with neat diagram.   (06 Marks)
     c.   Explain Resistive Position transducer.   (06 Marks)

OR

10   a.   Explain the construction and working of LVDT.   (08 Marks)
     b.   Explain Photovoltaic transducer.   (08 Marks)

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