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18MT46

Fourth Semester B.E. Degree Examination, Feb./Mar. 2022
Instrumentation and Measurements

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With a neat diagram, explain the elements of generalized measurement system. (10 Marks)
b. Explain deflection and null type instrument with neat figures and give comparison between them. (10 Marks)

OR

- 2 a. Briefly explain input-output configurations of measuring instruments and measurement systems. (10 Marks)
b. Explain the functions and any two applications of measurement systems. (10 Marks)

Module-2

- 3 a. Explain the working principle of successive approximation digital voltammeter. (10 Marks)
b. With neat block diagram, explain the working of digital multimeter. (10 Marks)

OR

- 4 a. With neat block diagram, explain the working of digital frequency meter. (10 Marks)
b. With neat block diagram, explain digital measurement of time. (10 Marks)

Module-3

- 5 a. With neat block diagram, explain dual beam CRO. (10 Marks)
b. Explain digital storage oscilloscope with neat diagram. (10 Marks)

OR

- 6 a. Explain the operation of sampling oscilloscope with neat block diagram. (10 Marks)
b. Draw the basic diagram of a Cathode Ray Tube. Explain the features of a CRT. (10 Marks)

Module-4

- 7 a. Explain Wheatstone's bridge with a neat diagram. What are its advantages? Write its applications. (10 Marks)
b. Explain Maxwell's bridge with a neat diagram. What are the advantages and limitations of Maxwell's bridge? (10 Marks)

OR

- 8 a. Explain Wagner's earth connection with a neat diagram. (10 Marks)
b. Explain Wien's bridge with a neat diagram and derive the equation for frequency of the applied voltage. (10 Marks)

Module-5

- 9 a. Define an electrical transducer. List the factors to be considered while selecting a transducer. (10 Marks)
b. With neat diagram, explain resistive position transducer. (10 Marks)

OR

- 10 a. Explain the construction and working of LVDT. (10 Marks)
b. Explain the basic operation of: i) LED ii) LCD. (10 Marks)
