USN ☐☐☐☐☐☐☐☐☐☐ **18MT46**

Fourth Semester B.E. Degree Examination, June/July 2024
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. Explain the working of deflection type and null type instruments with neat diagrams. **(10 Marks)**
   b. Explain the functions and applications of instrument and measurement systems. **(10 Marks)**

OR

2 a. With neat block diagram, explain the elements of generalized measurement system. **(10 Marks)**
   b. Explain the different methods of correction for interfering and modifying inputs. **(10 Marks)**

Module-2

3 a. Explain the working of voltage to frequency converter type DVM. **(10 Marks)**
   b. Explain the successive approximation type DVM with an example. **(10 Marks)**

OR

4 a. Explain the working of digital multimeter with neat block diagram. **(10 Marks)**
   b. Explain the working of digital frequency meter. **(10 Marks)**

Module-3

5 a. Explain the working of CRT with neat block diagram. **(10 Marks)**
   b. Explain the dual beam oscilloscope with necessary diagrams. **(10 Marks)**

OR

6 a. Explain delayed time base oscilloscope with neat diagram. **(10 Marks)**
   b. Explain the working of digital storage oscilloscope with neat diagrams. **(10 Marks)**

Module-4

7 a. Explain the working of Wheatstone bridge and derive the condition for balance. **(10 Marks)**
   b. Explain the working of Kelvin bridge and derive the condition for balance. **(10 Marks)**

OR

8 a. Derive the expression for frequency of oscillations in Wein's bridge with neat circuit diagram. **(10 Marks)**
   b. With neat diagram, explain Wagner's earth connection. **(10 Marks)**

Module-5

9 a. Define transducer and explain the factor need to be consider in selecting a transducer. **(05 Marks)**
   b. Explain the working of Resistive position transducer. **(05 Marks)**
   c. Explain the construction and working of LVDT. **(10 Marks)**

OR

10 a. Explain the working of piezoelectric pressure transducer. **(10 Marks)**
   b. Explain the construction and operation of thermo couple. **(10 Marks)**

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