CBCS SCHEME

USN | | | | | | | | | | |

15MT46

Fourth Semester B.E. Degree Examination, June/July 2018
Instrumentation and Measurement

Time: 3 hrs. Max. Marks: 80

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

Module-1

1 Explain deflection and Null type instrument with neat figures and given the comparison between them. **(16 Marks)**

OR

2 a. With a neat diagram, explain the elements of generalized measurement system. **(08 Marks)**
b. Briefly explain the Input-Output configuration of measurement instruments and systems. **(08 Marks)**

Module-2

3 Explain the phenomenon of Hysteresis, Dead time and dead zone, threshold, Linearity and Error Calibration curve. **(16 Marks)**

OR

4 a. List the factors influencing the choice of transducers. **(10 Marks)**
b. Obtain the output expression for the step-response of a second order system. **(06 Marks)**

Module-3

5 a. What is Hall effect? Explain briefly hall effect device operation. **(08 Marks)**
b. Describe the principle of transduction and explain variable capacitance transducer. **(08 Marks)**

OR

6 Describe the Base Capacitance Probe and Teflon or Kynar coated capacitance probe with relevant diagrams. **(16 Marks)**

Module-4

7 List the factors affecting strain gauges measurements and explain the working of resistance strain gauges. **(16 Marks)**

OR

8 a. Explain Wein's bridge with derivation of frequency and component values. **(08 Marks)**
b. Explain Wagner's earth connection with procedure of operation and advantages. **(08 Marks)**

Module-5

9 a. List the factors to be considered while selecting a transducer and explain Resistive position transducer and resistance pressure transducer. **(08 Marks)**
b. Explain Inductive transducers and explain with sketches the operation of LVDT (Linear Variable Differential Transformer)? **(08 Marks)**

OR

10 a. Explain with equivalent circuit the operations of a piezoelectric transducer. **(08 Marks)**
b. Explain LED operation. **(08 Marks)**

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