CBCS SCHEME

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

15EC35

Third Semester B.E. Degree Examination, June/July 2019
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. Explain different types of static errors of a measuring instrument. **(08 Marks)**

b. What is a thermocouple? Explain different type of thermocouple. **(08 Marks)**

OR

2 a. Explain the operation of true RMS voltmeter with diagram. **(08 Marks)**

b. Two different voltmeters are used to measure the voltage across R_b in the circuit of Fig.Q2(b)

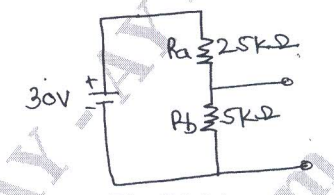

Fig.Q2(b)

The meters are as follows:
meter1: S = 1 kΩ/V Range = 10V
meter2
: S = 20 kΩ/V Range = 10V
Calculate :
(i) The voltage across R_b without any meter across it.
(ii) The voltage across R_b when meter1 is used.
(iii) The voltage across R_b when meter2 is used.
(iv) Error in the voltmeters. **(08 Marks)**

Module-2

3 a. Describe the principle operation of successive approximation DVM. **(08 Marks)**

b. Explain the operation of a microprocessor based instrument with a block diagram. **(08 Marks)**

OR

4 a. Explain the working of Dual-Slope integrating type DVM with the block diagram. **(08 Marks)**

b. With the help of diagram, explain the operation of a Digital Tachometer. **(08 Marks)**

Module-3

5 a. Draw the block diagram of CRT and explain the function of each block. **(08 Marks)**

b. Explain the principle of operation of square and pulse generator with its block diagram. **(08 Marks)**

OR

6 a. Explain the operation of a digital read out oscilloscope with block diagram. **(08 Marks)**

b. Describe the operation of a AF sine and square wave generator with diagram. **(08 Marks)**

Module-4

7 a. Explain the operation of an Analog pH meter using hydrogen electrode. **(08 Marks)**

b. Derive the balance equation for Wheatstone's bridge and mention its advantages and limitations. **(08 Marks)**

OR

8 a. Explain Wagner's earth connection. **(08 Marks)**

b. Explain the principle operation of a field strength meter with its block diagram. **(08 Marks)**

Module-5

9 a. Explain the operation of a Resistive Position Transducer with block diagram. **(08 Marks)**

b. Explain construction and principle operation of LVDT. **(08 Marks)**

OR

10 a. Explain the operation of a resistance thermometer and mention its advantages and limitations. **(08 Marks)**

b. Write note on:
(i) Piezoelectric Transducers (ii) Strain Gauges. **(08 Marks)**

* * * * *