UG/5th Sem/Elec(H)/T/19

2019

B.Sc. (Honours)

5th Semester Examination

ELECTRONICS

Paper - C11T

[Electronic Instrumentation (Theory)]

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Answer any *five* questions from the following : 2×5=10

   (i) What are static and dynamic error ?

   (ii) Define and explain the term calibration.

   (iii) A digital voltmeter has a read out range from 0-9999 counts. Determine the resolution of the instrument in volt when the full scale reading is 9.999/I.

[Turn Over]

(iv) What is scale span of an instrument ?

(v) A true value of voltage across resistor is 50V. The instrument reads 49. Calculate Absolute error & percentage of error.

(vi) What is transducer and its functions ?

(vii) Write the range of audio frequency.

(viii) The value of which electronic component is measured by Maxwell's bridge ?

2. Answer any *four* questions from the following : 5×4=20

(i) (a) Describe different characteristics of a pulse.

(b) Define duty cycle. 3+2

(ii) (a) Describe how a Galvanometer can be used to construct a DC ammeter.

(b) What is aryton-shunt ? 3+2

(iii) Describe with circuit diagram how unknown inductance can be measured by the Anderson Bridge. 5

(iv) (a) What is tachometer ?

(b) How pressure can be measured by capacitive transducer ? 2+3

(v) (a) Differentiate between dual beam and dual trace CRO.

(b) What do you mean by electrostatic deflection, deflection factor and deflection sensitivity in CRT. 2+(1+1+1)

(vi) Draw the circuit diagram and explain the operation of a successive-approximation type digital voltmeter. 5

3. Answer any *one* question from the following : 10×1=10

(i) (a) Draw the block diagram of a CRO and indicate its basic components.

(b) What is an Electron-Gun in CRT ?

(c) Draw the block diagram of a Function generator. 5+2+3

(ii) (a) Write the working principle of Linear Variable Differential Transformer (LVDT).

[Turn Over]

(b) Write two advantages and two disadvantages of LVDT.

(c) Explain with circuit diagram how R-2R ladder circuit acts as a DAC ? 3+2+5
