DG-3187
Third Year B. Sc. (Sem. V) Examination
March / April - 2016
Electronics : Paper - IX
(Basic Instrument & Measurement)

Time : 2 Hours] [Total Marks : 50
Instructions :
(1) Fill up strictly the details of signs on your answer book.
Name of the Examination :
T. Y. B. Sc. (SEM. 5)
Name of the Subject :
Electronics : Paper - 9
Subject Code No. : 3 1 8 7 Section No. (1, 2,.....) : Nil

(2) Q. 1 is compulsory.
(3) Figures at extreme right indicate full marks.
(4) Draw figures/diagrams to support your answer.
(5) Assume data, if required.

1 Answer in brief :
(a) What is impedance matching ? Why is it needed ?
(b) What do you mean by error in measurement ?
(c) Define deflection accuracy and precision.
(d) What are static characteristics of an instrument ?
(e) Define Absolute and Relative errors.
(f) Define Resolution and Threshold.
(g) Draw the block diagram of PMMC.

2 (a) Describe the construction and working of a Schering Bridge, also derive its necessary equations.
(b) Explain the principle of Capacitive Transducers and explain it in detail.

OR

DG-3187] 1 [Contd...
2 (a) Explain different errors by giving suitable examples; discuss the means adapted to minimize these errors.

(b) A 0-150 V voltmeter has a guaranteed accuracy of 1% of full scale reading. The voltage measured by this instrument is 70 V. Calculate the limiting error in percentage.

3 (a) Write a note on classification and selection of transducers.

(b) Derive the balance equation of an AC bridge.

OR

3 (a) Explain different types of inputs for an instrumentation system. Also discuss the two methods of correction for these inputs.

(b) Three resistances have the following ratings:

\[ R_1 = 35 \, \Omega \pm 5\%, \quad R_2 = 75 \, \Omega \pm 5\%, \quad R_3 = 50 \, \Omega \pm 5\% \]

Determine the limiting errors in percentage when resistances are connected in series.

4 Write short notes on: (any two)

(a) Strain Gauge

(b) Inductive Transducer

(c) Thermistor characteristics and applications

(d) Desauty Bridge.