AB-3187
Third Year B. Sc. (Electronics) (Sem. V)
Examination
March/April – 2015
Electronics : Paper - IX
(Basic Instruments & Measurement)

Time : 2 Hours] [Total Marks : 50

Instruction :

(1) Figures on the right indicates full marks.
(2) All symbols and abbreviations have their usual meaning.
(3) Non-programmable calculators are allowed.
(4) Q. 1 is compulsory.
(5) Assume data if necessary.

1 Answer in brief : 14

(a) Define error and state its types.
(b) Draw the block diagram of PMMC.
(c) Define deflection sensitivity and hysteresis.
(d) Define troubleshooting.
(e) What is impedance matching? Why is it needed?
(f) Define Resolution & Threshold.
(g) Define Absolute & Relative errors.

2 (a) Explain different types of Errors and how they can be reduced? 6
(b) Explain the construction & working of a galvanometer. 6

OR

AB-3187] 1 [Contd...
2 (a) How can you modify a PMMC to use it as a dc ammeter & a dc voltmeter? Explain with necessary equations.
(b) A basic D'Arsonal movement with a full-scale deflection of 50 μA & internal resistance of 500Ω is used as a voltmeter. Determine the value of the multiplier resistance needed to measure a voltage range of 0-10V.

3 (a) What is an AC bridge. Describe the Maxwell Bridge with necessary equations.
(b) Discuss the advantages and disadvantages of Maxwell Bridge.

OR
3 (a) Describe the construction and working of a Schering Bridge, also derive its necessary equations.
(b) A capacitance comparison bridge is used to measure the capacitive impedance at the frequency of 3 kHz. The bridge constants at bridge balance are: C3= 10 μF, R1=1.2kΩ, R2=100kΩ,R3=120kΩ. Find the equivalent series circuit of the unknown impedance.

4 Write short notes on: (any two)
(a) Strain Gauge
(b) Capacitive Transducer
(c) Thermistor characteristics and applications
(d) Desauty Bridge