



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)

<p>नीचे दृशायेव निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : THIRD YEAR B. SC. (ELECTRONICS) (SEM. V)</p> <p>Name of the Subject : ELECTRONICS : PAPER - IX</p> <p>Subject Code No. : 3 1 8 7 Section No. (1, 2,.....): Nil</p>	<p>Seat No. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <div style="border: 1px solid black; border-radius: 15px; height: 80px; display: flex; align-items: center; justify-content: center; margin-top: 10px;"><p>Student's Signature</p></div>
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- (2) Figures on the right indicates full marks.
- (3) All symbols and abbreviations have their usual meaning.
- (4) Non-programmable calculators are allowed.
- (5) Q. 1 is compulsory.
- (6) 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

- 2 (a) How can you modify a PMMC to use it as a dc ammeter & a dc voltmeter? Explain with necessary equations. 8
- (b) A basic D'Arsonal movement with a full-scale deflection of $50 \mu\text{A}$ & 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. 4
- 3 (a) What is an AC bridge. Describe the Maxwell Bridge with necessary equations. 8
- (b) Discuss the advantages and disadvantages of Maxwell Bridge. 4
- OR**
- 3 (a) Describe the construction and working of a Schering Bridge, also derive its necessary equations. 8
- (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: $C_3 = 10 \mu\text{F}$, $R_1 = 1.2\text{k}\Omega$, $R_2 = 100\text{k}\Omega$, $R_3 = 120\text{k}\Omega$. Find the equivalent series circuit of the unknown impedance. 4
- 4 Write short notes on: **(any two)** 12
- (a) Strain Gauge
- (b) Capacitive Transducer
- (c) Thermistor characteristics and applications
- (d) Desauty Bridge
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