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**RAN-2003000205020094****T. Y. B. Sc. (Electronics) (Sem. - V) Examination March - 2023****Basic Instrumentation and Measurement : Paper - IX****[ Total Marks: 50****सूचना : / Instructions**

(1)

नीचे दृशविले निशानीवाणी विगतो उत्तरवही पर अवश्य लखवी.

Fill up strictly the details of signs on your answer book

Name of the Examination:

T. Y. B. Sc. (Electronics) (Sem. - V)

Name of the Subject :

Basic Instrumentation and Measurement : Paper - IX

Subject Code No.: 2003000205020094

Seat No.:

Student's Signature

- (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.

**Q. 1 Answer in brief:****14**

- A) What do you understand by the term instrument?  
B) What do you mean by hysteresis & sensitivity?  
C) Draw the block diagram of PMMC.  
D) Define Resolution & Threshold.  
E) What is the resolution of 4 1/2 digit display on 1V & 10V ranges?  
F) Define error and state its types.  
G) Define deflection accuracy and precision.

**Q. 2** A) Explain different errors by giving suitable examples; discuss the means adapted to minimize these errors.**6 + 6**

- 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.

**OR**

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[ 1 ]

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- Q. 2** A) Write a note on Ultrasonic flow Meter. **6 + 6**  
B) What is a bridge? Why bridge circuit is required in instrumentation?

- Q. 3** A) Explain different types of inputs for an instrumentation system. Also discuss the two methods of correction for these inputs. **6 + 6**  
B) Three resistances have the following ratings:  
 $R_1 = 35 \Omega \pm 5\%$ ,  $R_2 = 75 \Omega \pm 5\%$ ,  $R_3 = 50 \Omega \pm 5\%$ .  
Determine the limiting errors in percentage when resistances are connected in series.

**OR**

- Q. 3** A) Derive the balance equation of an AC bridge. **6 + 6**  
B) What are the limitations of Desauty Bridge?

- Q. 4** **Write short notes on: (ANY TWO)** **12**  
A) Strain Gauge  
B) LVDT  
C) PMMC  
D) Desauty Bridge
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