



C09-AEI-306

**3216**

**BOARD DIPLOMA EXAMINATION, (C-09)  
MARCH/APRIL—2017  
DAEI—THIRD SEMESTER EXAMINATION  
PROCESS INSTRUMENTATION**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define the following :
  - (a) Accuracy
  - (b) Repeatability
2. Define the following :
  - (a) Zero drift
  - (b) Linearity
3. Draw the diagram of LVDT.
4. State the principle of Hall probe.
5. Classify temperature transducers.
6. Draw the diagram of C-shaped Bourdon tube.
7. State the necessity of pressure multiplexer.
8. Draw a sketch of Venturi tube.

- \* 9. State the principle of nucleonic level gauge.  
 10. Define relative humidity.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the following : 4+3+3=10  
 (a) Systematic error  
 (b) Random error  
 (c) Operational error
12. Explain the principle of resistance strain gauge with diagram and write the expression for gauge factor. 8+2=10
13. Explain the principle of operation of the following : 5+5=10  
 (a) Moving coil-type velocity transducer  
 (b) Bimetallic strip
14. Explain the principle of operation of thermocouple with a diagram. 10
15. Explain, with diagram, the principle of operation of force balance pressure transducer. 10
16. Explain the principle of operation of electromagnetic flow meter with a diagram. 10
17. Explain the principle of operation of the following :  
 (a) Hot wire anemometer 5  
 (b) Liquid level sight glass 5
18. Explain the principle of operation of condensation-type hygrometer. 10

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