



C09-AEI-306

**3216**

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

Time : 3 hours ]

[ Total Marks : 80

---

**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 : 1½+1½

(a) Accuracy

(b) Precision

**2.** Define the following : 1½+1½

(a) Zero drift

(b) Dynamic accuracy

**3.** Draw the diagram of toothed rotor variable reluctance tachometer.

**4.** State the importance of vibration monitoring.

**5.** List the classification of temperature transducers.

- \* 6. State the principle of operation of helical bourdon tube diaphragm.
7. Draw the diagram of capsule.
8. Define orifice plate and list the types of orifice plates.
9. Draw the diagram of level switch.
10. Define the following : 1½+1½  
 (a) Relative humidity  
 (b) Moisture

**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. (a) Explain the basic requirements of transducer. 6  
 (b) Define the following : 4  
 (i) Hysteresis  
 (ii) Repeatability
12. (a) Explain the principle of operation of resistance strain gauge. 5  
 (b) Explain the principle of operation of moving iron type velocity transducer. 5
- \* 13. (a) Explain the principle of operation of variable reluctance transducer. 5  
 (b) Explain the principle of operation of gas filled thermometer. 5
14. Explain the principle of operation and list the applications of infrared pyrometer. 10

- \* 15. (a) Explain the principle of operation of Piezo electric pressure transducer. 5  
 (b) Explain the pressure calibration using dead weight tester. 5
16. (a) Explain the principle of operation of hot wire type anemometer. 5  
 (b) Explain the principle of operation of venture tube. 5
17. (a) Explain the principle of operation of ultra sonic flow meter and list its advantages and disadvantages. 6  
 (b) Draw the diagram of liquid level sight glass. 4
18. Explain the principle of operation of torque sensor. List its advantages and applications. 10

\*\*\*