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C09–AEI–306

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BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2013

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) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define *(a)* linearity and *(b)* hysteresis.

2. Classify transducers and give examples.

3. Draw the diagram of linear variable reluctance transducer.

4. State the importance of vibration monitoring.

5. Classify temperature transducers.

6. State the operation of potentiometric pressure transducer.

7. Draw the diagrams *(a)* capsule, *(b)* bellows and *(c)* Bourdon tube. 1+1+1

8. State the principle of Pitot tube.

9. Define *(a)* relative humidity and *(b)* moisture.

10. Draw the diagram of resistive-type level indicator.

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)* List the basic requirements of transducer. 6

(b) Define calibration and give its importance. 4

12. Explain the principle of operation of linear variable differential transformer with neat sketches. 10

13. *(a)* Explain the principle of photoelectric tachometer. 5

(b) Explain the principle of operation of gas filled thermometer. 5

14. Explain the operation of optical pyrometer. 10

15. *(a)* Explain the principle of operation of pressure multiplexer. 6

(b) Draw the diagram of dead weight tester. 4

16. *(a)* Explain the principle of operation of orifice plate for flow measurement. 8

(b) Draw the diagram of ultrasonic flow meter. 2

17. *(a)* Explain the operation of electromagnetic flow meter. 5

(b) Explain the operation of torque sensor. 5

18. *(a)* Explain the principle of operation of electrolytic hygrometer. 7

(b) Draw the diagram of float actuated level indicator. 3

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