



C14-M-605

4761

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH/APRIL—2017**  
**DME—SIXTH SEMESTER EXAMINATION**  
**MEASUREMENT AND CONTROL SYSTEMS**

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. State the applications of measurement systems.
2. Classify the methods of measurements and give examples to each method.
3. List out the important factors to be considered for selection of measuring instrument.
4. Define transducer with line diagram.
5. Distinguish between primary and secondary transducers.
6. Define the thermistor and draw a symbol for a thermistor.
7. List out the different electrical tachometers.

- \* 8. List out the different types of pressure measurement devices.
9. Write the differences between open-loop and closed-loop control systems.
10. Write the properties of hydraulic fluids.

**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 characteristics of measuring instruments :

(a) Linearity

(b) Sensitivity

(c) Zero drift

(d) Range

(e) Resolution

12. Explain the different types of errors occurring in process of measurement.

13. Describe the principle, working and applications of the following transducers :

(a) Capacitive transducer

(b) Piezoelectric transducer

14. (a) Write the requirements of strain gauges.

(b) Explain the bonded metal foil strain gauge with a neat sketch.

- \* 15. Explain the principle of working of bimetallic thermometers. State the advantages, limitations and the properties of materials of bimetallic strips.
16. Explain the following mechanical tachometers with the help of neat sketches :
- (a) Revolution counter and timer
  - (b) Slipping clutch tachometer
17. Explain the working of the Doppler effect ultrasonic flow meter and also mention its advantages and disadvantages.
18. Explain servomechanism and write its applications.

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