Roll No. .....

Total Pages : 3

Exam. Code
6047

8741

BT-7/M-11

MEASUREMENT & CONTROL

Paper : ME-403E

Time : Three Hours] [Maximum Marks : 100

Note : (i) Attempt *five* questions in all, selecting at least *one* question from each unit.

(ii) All questions carry equal marks.

UNIT–I

1. (a) State & explain the functional elements of a generalised measuring system. Illustrate by a diagram. 10

   (b) Compare the advantages & limitations of a Mechanical & Electrical measuring system. 10

2. (a) What is an Error ? None & explain different types of errors giving their causes and sources. 10

   (b) Explain the following terms :

   (i) Sensitivity.

   (ii) Resolution.

   (iii) Backlash. 10

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UNIT–II

3. (a) Define the dynamic response of a system and distinguish between Steady State Response and Transient Response. 10

   (b) Define periodically varying Inputs and transient Inputs. Give examples. 10

4. State Chauvenet's criterion for rejection of dubious data. 10 copper rods selected at random were found to have the following lengths in metres 5.30, 5.73, 6.77, 5.26, 4.33, 5.45, 6.09, 5.64, 5.81 & 5.75. Determine the reading which can be rejected by applying Chauvenets criterion. The ratio of maximum deviation to standard deviation should not exceed 1.96. 20

UNIT–III

5. (a) Distinguish between an Active & Passive Transducer. Give examples to illustrate. Discuss various Transducer Actuating Mechanisms. 10

   (b) Explain following types of errors for a transducer

   (i) Scale errors.

   (ii) Dynamic errors.

   (iii) Noise & Drift error. 10

6. Explain the principle & application of the following :

   (a) Proving Rings.

   (b) Fluid Pressure measurement in a pipe using Strain Gauge. 20

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UNIT–IV

7. (a) What is Control System ? What are the basic components ? Give *two* examples of control system. 10

(b) Describe Servo Mechanism. Draw Block Diagram of Servo Mechanism. 10

8. Write short notes on the following :

(a) Desirable characteristics of Hydraulic fluids.

(b) Hydraulic control valves & their types.

(c) Advantages & limitations of Pneumatic control systems. 20
