

Roll No.

Total No. of Page : 3

• **BT-7/D11 : 7853**

ME-403 E : Measurement & Control

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

- Q.1. a) Discuss fundamental methods of measurement with suitable examples. 10
b) Distinguish between primary, Secondary & Tertiary standards giving purpose of each Give at least two desirable characteristics of each. 10
- Q.2 Compare the performance of Digital Instrument over Analog instrument with respect to 20
i) Sensitivity ii) Accuracy
iii) Resolution iv) Cost

UNIT-II

- Q.3. Discuss the Dynamic Response of first order mechanical system with ramp input, with the help of labelled neat Diagram. 20

Q.4 What do you understand by:

- i) Dubious Data
ii) Precision Index
iii) Confidence level
iv) Standard Deviation for normal curve 5x4=20

UNIT-III

- Q.5 Discuss the i) Null and ii) Deflection mode of a Wheatstone bridge circuit as used for measurement of resistance and small changes of resistance occurring in temperature and strain measuring system. 20
- Q.6 a) What are strain Gauges? Discuss their types giving their advantages and disadvantages in each case. What is gauge factor? State its significance. 10
b) Discuss giving relevant theory the method of measuring torque using strain gauge torsion meter. 10

UNIT-IV

- Q.7 a) What is Automatic control? What are its applications? 10
b) Compare between open loop system & closed loop system. 10

- Q.8 Give the schematic of general pneumatic control system and describe the function of various elements. How the force balance controller differs from the motion balance controller.

20