

B.E. Fifth Semester (Mechanical Engineering) (CGS)
10851 : Measurement Systems : 5 ME 03

P. Pages : 2

Time : Three Hours



AU - 2648

Max. Marks : 80

- Notes :
1. Answer **Three** question from Section A and **Three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and chemical equations should be given wherever necessary.
 5. Retain the construction lines.
 6. Illustrate your answer necessary with the help of neat sketches.
 7. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) Identify & explain the functional elements in Bourdon tube pressure gauge with schematic diagram. 7
b) What are primary, secondary & tertiary measurement? Explain each with suitable examples. 7

OR

2. a) Explain various methods of correction for interfering & modified inputs with neat sketches. 7
b) What are the applications of measurement systems? Discuss. 7
3. a) What are the various static characteristics of measuring instruments? Define any five static characteristics. 6
b) What are dynamic characteristics? Define the followings : 7
 - i) Measuring Lag.
 - ii) Speed of response.
 - iii) Dynamic error.

OR

4. a) Obtain the mathematical equations for zero, first & second order measuring systems from generalised mathematical model. 7
b) Define & distinguish between the followings. 6
 - i) Drift & Reproducibility.
 - ii) Threshold & Resolution.
5. a) With neat figure explain construction & working of McLeod Gauge for vacuum measurement. 7
b) Define gauge factor & prove that $F = 1 + 2\mu$. 6

OR

6. a) Explain ionisation gauge for vacuum measurement with neat figure. 7
b) What is temperature compensation & how it is achieved for strain gauge. 6

SECTION – B

7. a) Explain with neat figure pneumatic load cell. 7
b) Explain working of rotameter with neat figure. 7

OR

8. a) Explain hydraulic load cell with its neat figure. 7
b) What is Pitot static tube? Explain with neat sketch. 7
9. a) Explain optical pyrometer with its neat diagram. 7
b) Explain bubbler system for liquid level measurement with neat figure. 6

OR

10. a) Distinguish between thermocouple & bimetallic strip with neat sketches. State their applications. 7
b) Explain electric resistance method for liquid level measurement with neat figure. 6
11. a) Explain the method of speed measurement with stroboscope with neat figure. 7
b) Explain the following with neat sketches. 6
i) LVDT ii) LDR

OR

12. a) Explain the following for speed measurement with neat figures. 8
i) Photoelectric pickup. ii) Magnetic pickup.
b) Explain seismic strain gauge type accelerometer with neat sketch. 5
