

313316

25226

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Solve any FIVE of the following :

10

- (a) Define metrology.
- (b) Compare range and span.
- (c) List the uses of comparator.
- (d) Distinguish between comparator and gauges (any two points).
- (e) List the instruments used for angle measurement.
- (f) List the types of flow meters.
- (g) Identify the devices used for force measurement and speed measurement.

2. Solve any THREE of the following :

12

- (a) Draw a neat sketch of micrometer.
- (b) Illustrate testing of gear with suitable sketch.
- (c) Classify the transducers.



- (d) List the minimum no. of slip gauges to be wrung together to produce an overall dimension of 73.975 mm using a set of 87 pieces. The set contain

Range (mm)	Step	Pieces
1.005	—	1
1.001 to 1.009	0.001	9
1.01 to 1.49	0.01	49
0.5 to 9.5	0.5	19
10 to 90	10	9

3. Solve any THREE of the following :

12

- (a) Differentiate between line standard and end standard.
- (b) Justify that, precaution of measuring instrument is necessary to get higher precision and accuracy.
- (c) Draw a neat sketch of Bevel protractor used for angle measurement.
- (d) Describe the temperature measurement by thermocouple.

4. Solve any THREE of the following :

12

- (a) Describe the types of errors and its sources in measurement.
- (b) Evaluate Ra and Rz value of surface roughness.
- (c) Describe Taylor's principle of gauge design.
- (d) Explain with neat sketch primary texture and secondary texture.
- (e) Write the procedure of measuring the flow by Rotameter.

5. Solve any TWO of the following :

12

- (a) Explain with neat sketch the pneumatic comparator with its merits and demerits.
- (b) Explain the construction and working of LVDT.
- (c) Explain the force measurement by strain gauge.

6. Solve any TWO of the following :

12

- (a) Illustrate the generalized measuring system with its components and explain.
- (b) Explain the speed measurement by using stroboscope with its advantages and disadvantages.
- (c) Calculate the effective diameter of wire by two wire method.
