

313316

24225

3 Hours / 70 Marks

Seat No. 

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any FIVE of the following : 10
- a) Define Metrology.
  - b) State the need of inspection in Industry.
  - c) Define selective Assembly.
  - d) Write any two advantages and disadvantages of a good comparator.
  - e) Draw a neat sketch of metric screw thread profile.
  - f) Name any two metals used for Bimetallic strip.
  - g) State any two methods of sound measurement.

P.T.O.

**2. Attempt any THREE of the following :****12**

- a) Define :
- i) Range
  - ii) Least count
  - iii) Accuracy
  - iv) Precision
- b) Differentiate between line standard and end standard.
- c) Explain working of LVDT with neat sketch.
- d) Prepare a stack of slip gauges for height 58.975 mm using set M112.

Slip gauge set M112

Range (mm)	Step (mm)	No. of pieces
1.001 to 1.009	0.001	09
1.010 to 1.490	0.010	49
0.50 to 24.50	0.500	49
25, 50, 75, 100	25	4
1.0005		1
	<b>Total</b>	<b>112</b>

**3. Attempt any THREE of the following :****12**

- a) Draw a diagram indicates 4.32 mm on vernier scale.
- b) Name the types of standards used for steel rule and vernier caliper respectively. Compare them both (At least two points)
- c) State any four advantages of using CMM (Co-ordinate Measuring Machine).
- d) Draw a Generalized Measurement System and explain its components.

- 4. Attempt any THREE of the following :** **12**
- a) Differentiate between systematic and Random error.
  - b) Illustrate a method of measurement of angle below  $90^\circ$ .
  - c) Describe a working of Dial indicator with suitable diagram.
  - d) Explain Parkinson gear tester with suitable diagram.
  - e) How the temperature is measured by using RTD.
- 5. Attempt any TWO of the following :** **12**
- a) Explain Taylor's principle of Gauge design for Go and No-Go gauge with suitable example.
  - b) Classify Transducers (Any four points) and differentiate between Active and Passive Transducers (Any two points).
  - c) Explain working of eddy current drag up Tachometer with suitable diagram.
- 6. Attempt any TWO of the following :** **12**
- a) How flow meters are classified? Explain working of Rotameter with neat sketch.
  - b) Illustrate strain gauge load cell for force measurement with suitable diagram.
  - c) Explain principle of floating carriage micrometer for measurement of effective diameter of Screw Thread.
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