22450

21819

3 Hours / 70 Marks Seat No. | | | | | | | | |

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) 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 the term scientific metrology and legal metrology.

b) List any four sources of errors in measurements.

c) State any four characteristics of good comparator.

d) Explain why hole basis system is preferred over shaft based system.

e) State any two limitations of Sinebar.

f) Name the types of pitch errors.

g) State the meaning of the Quality.

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

a) Differentiate between Line Standard and End Standard.

b) Explain concept of tolerance and allowance with suitable example.

c) Draw labeled sketch of sigma comparator and explain its working.

d) Differentiate between accuracy and precision.

Marks

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

a) Explain the Taylor's principle of guage design.

b) Explain principle of Go No Go gauging.

c) Explain the two-wire method of effective diameter measurement with neat sketch.

d) Explain the principle of measurement of Parkinson gear tester with a neat sketch.

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

a) Explain the principle of measurement of tooth thickness by gear tooth vernier caliper.

b) Explain working principle of floating carriage dial micrometer with sketch.

c) "Sine bar is not preferred for measuring angle more than 45°". Justify.

d) An angle of 114° 28′ 36″ is to be developed using angle guage set of [1°, 3°, 9°, 27°, 41°] [1′, 3′, 9′, 27′] [3″, 6″, 18″, 30″] and a right angle (square block). Sketch the arrangement.

e) Prepare a neat labeled diagram to designate surface finish on drawing.

5. Attempt any TWO of the following: **12**

a) Explain the principle of stylus probe type direct instrument measurement of surface finish.

b) Explain how the parallelism between two planes and parallelism between two axes is checked with neat sketch.

c) Write advantage and limitations of ISO 9000 implementation.

Marks

6. Attempt any TWO of the following: **12**

a) Sketch ideal and actual o.c curve showing all parameters on it and define them.

b) Differentiate between inspection and quality control with suitable examples.

c) In a manufacturing process following observation are recorded. Draw appropriate control chart and conclude.

Observation Table.

Sample No	Defective Found out of 50
1	3
2	2
3	0
4	3
5	5
6	1