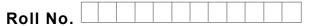
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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(PE) (E-III) (Sem.–3) METROLOGY & INDUSTRIAL INSPECTION Subject Code : PE-521 Paper ID : [E0456]

Time: 3 Hrs.

Max. Marks: 100

INSTRUCTION TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWENTY marks.
- 1. a) Explain the three standards associated with linear measurements. (10+5+5)
 - b) What is meant by primary, secondary and working standards?
 - c) What is Interchangeability? Discuss its significance.
- 2. a) Discuss in detail procedure for measurement of angle on a component using a sine bar. (10+10)
 - b) Discuss in brief optical Projectors.
- 3. a) Explain the principle of working of Taylor-Hobson Talysurf profiler. (10+10)
 - b) Explain the role of plastic replica techniques in the assessment of surface roughness.
- 4. a) Explain the concept behind the calibration of gauges by the interference method. Why the interference method gets its name? Discuss the limitations of the technique.

(10+10)

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- b) Explain the working principle of an interferometer with neat sketches.
- 5. a) Briefly describe any of the absolute length gauge interferometer. (10+10)
 - b) Explain any one method of checking thread angle or flank angle of a screw thread.
- 6. Explain in detail the working principle of a pneumatic comparator. Discuss its relative merits and demerits over an electronic comparator. (20)
- 7. a) Draw the set up and explain the measurement of effective diameter of a screw thread using three wires. (15+5)
 - b) Write different criteria for selection of gauging equipments.

8. Write short notes on : (7+7+6)

- a) Obliquity correction in calibration of working standards.
- b) Flatness and Square testing.
- c) Sensitivity and response

1 | M-39020