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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)
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