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Total No. of Questions : 08]

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M.Tech.

**METROLOGY & INDUSTRIAL INSPECTION**

**SUBJECT CODE : PE - 521 (Elective - III)**

**Paper ID : [E0456]**

[Note : Please fill subject code and paper ID on OMR]

**Time : 03 Hours**

**Maximum Marks : 100**

**Instruction to Candidates:**

- 1) Attempt any **Five** questions.
- 2) **All** questions carry equal marks.

- Q1)** (a) Differentiate between line and end standards. Explain giving examples. How can end standards be derived from line standards.
- (b) What is Interchangeability? Discuss its significance.
- Q2)** Discuss the entire procedure for the measurement of angle on a component using a sine bar. What are the main advantages, disadvantages and applications.
- Q3)** (a) Discuss the significance of the parameters  $R_a$ ,  $R_t$  and  $R_{max}$ . How is roughness on a surface different from waviness.
- (b) State the possible causes of each of the various types of irregularities found in surface texture. Show how surfaces having the same numerical assessment may have different properties and textures.
- Q4)** (a) Explain the working of Taylor-Hobson Talysurf machine.
- (b) What is interferometry? Briefly discuss its main applications.
- Q5)** (a) What are the main dimensions of v-form screw threads? Discuss the working of Wickman type screw thread gauge?
- (b) Describe the use of gear tooth vernier caliper in measuring major elements of gears.
- Q6)** Explain the working principle and procedure of a pneumatic comparator. Discuss its relative merits and demerits over an electronic comparator.

- Q7) (a) Discuss the applications and procedure of three wire method.  
(b) What are Moire Fringes and how can these be utilized for accurate length measurement.

Q8) Write short notes on the following (any two) :

- (a) Quality control Management.
- (b) Selection of gauging equipment.
- (c) Electrical comparators.
- (d) Limits, fits and tolerances.

