

**FACULTY OF ENGINEERING**  
**B.E. (MECH/PROD) VI-Semester (AICTE) (Backlog) Examination,**  
**March / April 2022**  
**Subject: Metrology & Instrumentation**

**Time: 3 hours**

**Max. Marks: 70**

**(Missing data, if any, may be suitably assumed)**

**PART – A**

**Note: Answer all questions**

**(10 x 2 = 20 Marks)**

- 1 Define Interchangeability.
- 2 Differentiate between clearance fit and transition fit.
- 3 Differentiate between gauge and comparator.
- 4 Discuss the measuring principle of pneumatic comparator.
- 5 Explain about sine bar and write its limitations.
- 6 What are roughness comparison specimens?
- 7 Define an error.
- 8 Explain the concentricity of inspecting gear.
- 9 Define transducer.
- 10 Briefly explain Rosette gauge.

**PART – B**

**Note: Answer any five questions**

**(5 x 10 = 50 Marks)**

- 11 a) Write short notes on (i) Inside micrometer (ii) Screw thread micrometer.  
b) State and explain the Taylor's principle of plain limit gauges.
- 12 a) Explain the roundness measurement with Talyround.  
b) Explain with neat sketch, operations and applications of Sigma mechanical comparator.
- 13 a) Explain the principle and operation of Parkinson gear with a neat sketch.  
b) How is effective diameter of a screw thread measured using 2-wire method?
- 14 a) Discuss the classification of error's in instrumentation systems.  
b) Explain wire and foil type resistance strain gauge.
- 15 a) Discuss the thermocouple circuit principle.  
b) Explain the working of pirani gauge with a neat sketch to measure pressure.
- 16 a) Explain with sketch the testing conducted on lathe bed.  
b) Explain the working of piezo electro load cell.
- 17 a) Discuss the uses of Plug, ring and snap gauges.  
b) Write short notes on Parkinson gear tester.

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