

Code No: **R1632031**

R16

SET - 1

III B. Tech II Semester Regular/Supplementary Examinations, August-2021
METROLOGY

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)

2. Answer **ALL** the question in **Part-A**

3. Answer any **FOUR** Questions from **Part-B**

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**PART -A**

**(14 Marks)**

1. a) What is fundamental deviation? [2M]
- b) What are the uses of micrometer? [2M]
- c) List the applications of tool maker's microscope. [3M]
- d) Define Comparator. [2M]
- e) What is total composite error? [3M]
- f) What is the principle of auto collimator? [2M]

**PART -B**

**(56 Marks)**

2. a) Explain why unilateral tolerance system is generally preferred over bilateral system? [7M]
- b) Explain the terms interchangeable manufacture and interchangeable assembly. [7M]
3. a) Explain the working principle of Micrometer with a neat sketch. [7M]
- b) Explain the phenomenon involved in "Wringing" of slip gauges. [7M]
4. a) What are interferometers? What are their advantages over optical flats? Explain. [7M]
- b) How interference fringes are formed when optical flat is placed on a surface to be tested? Explain. [7M]
5. Describe the principle and operation of Taylor-Hobson Talysurf surface roughness instrument with a neat sketch. [14M]
6. a) Describe with neat sketches the three-wire method of measuring the effective diameter of a screw threads. [7M]
- b) Write a short note on Parkinson's gear tester. [7M]
7. a) Explain the principle of working and construction of Auto-collimator with a neat sketch. [7M]
- b) Write the procedure for the Alignment test on drilling machine with a neat sketch. [7M]

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