USN

III Sem B E Examination
MECHANICAL MEASUREMENTS & METROLOGY
[Common to ME / IP / IM / AU / MA]
MODEL QUESTION PAPER

Time: 3 Hrs.]   [Max. Marks: 100

*(Answer any **FIVE** questions selecting at least **two** from each part)*

P A R T - A

1. a) What is metrology ? Compare line and end standards with examples.   **07**
    b) Explain calibration of end bars.   **06**
    c) What is Wringing Mechanism, using M112 set of slip gauges buildup the following dimensions.
        i) 43.716mm   ii) 37.975mm   **07**

2. a) Explain principles of interchangeability and selected assembly.   **06**
    b) Explain Taylor's principles.   **06**
    c) Differentiate between hole basis system and shaft basis system.   **08**

3. a) What is a comparator ? with a neat sketch explain working of sigma comparator.   **10**
    b) Explain principle and working of a sine bar.   **06**
    c) Using angle gauges build up as following angles.   **04**
        i) $? = 26^o\ 50'\ 30"$ ii) $? = 35^o\ 16'\ 42"$

4. a) With a neat sketch, explain working of Auto Collimator.
    b) With a neat sketch, explain gear terminology.

P A R T - B

5. a) Define the following terms   **05**
        i) Accuracy   ii) Precision   iii) Calibration   iv) threshold   v) Heystersis
    b) With a neat sketch, explain working of any one mechanical transducer.   **10**
    c) List the classification of errors.   **05**

6. a) What are the inherent problems with mechanical system.   **06**
    b) What is ballast circuit & Explain.   **06**
    c) Explain working of CRO.   **08**

7. a) With a neat sketch, explain working of prony brake dynamometer.   **10**
    b) Explain principle and working of Pirani gauge with a neat sketch.   **10**

8. a) What is a thermocouple ? What are thermocouple laws ?   **07**
    b) Write a note on optical pyrometers.   **06**
    c) What is a strain gauge ? Write a note on mounting of strain gauges.   **07**