Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Ind. Engg. & Mgt.) (Spl. in TQM) (Sem.–3)

MEASUREMENTS AND METROLOGY

Subject Code : IEM-303

M.Code : 61013

Time : 3 Hrs. Max. Marks : 40

INSTRUCTIONS TO CANDIDATES :

1. **Attempt All EIGHT questions from SECTION-A carrying TWO marks each.**
2. **Attempt any SIX questions out of EIGHT from SECTION-B carrying FOUR marks each.**

SECTION-A

Q1. Answer briefly :

a. Discuss the basic blocks of a generalized measurement system.

b. State the principle of a micrometer. Sketch an outside micrometer and name its various parts.

c. What is clinometer? Describe how it can be used for measurement and setting of angles.

d. Give the working principle of a microscope.

e. Explain the working of a load cell.

f. What is global positioning system?

g. Give the concept of interchangeability.

h. What is calibration of measuring instruments? Explain with an example.

SECTION-B

Q2 a. Differentiate between Random error and Systematic error.

b. Define the term 'Metrology'. State its significance in modern industries.

Q3 Describe in brief the construction and working of an optical comparator with a neat sketch.

Q4 Describe with neat sketches two - wire method of measuring the effective diameter of screw threads.

Q5 Describe with neat sketch construction and working of an instrument used for measurement of surface texture.

Q6 Describe the construction and working of a Bourdon tube. Describe the C-type and spiral type Bourdon tube with a neat sketch.

Q7 Describe the measurement of :

a. Electrical resistance

b. Humidity

Q8 Explain with one example of each :

a. Clearance fit

b. Transition fit

c. Interference fit

Q9 Why is international acceptability of test results important? Give reasons in support of your answer.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.