Printed Pages : 2

NME403

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 140410

Roll No.

B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15

MEASUREMENT AND METEROLOGY

Time : **2** Hours] [Total Marks : **50**

NOTE : Attempt all the questions.

1 Attempt any four of the following : **4×3.5=14**

(a) What is the function of transducer? What is the difference between active and passive transducer? What is the advantage if the output of the transducer is an electrical signal?

(b) Explain briefly the working principle of LVDT. How can displacement be measured with a LVDT ?

(c) Explain what is meant by systematic and random error?

(d) Explain any one recording device, with schematic diagram.

(e) Define accuracy, precision, drift and sensitivity.

2 Attempt any two of the following : **6×2=12**

(a) Describe PIRANI GAUGE and its working principle .What is the range of absolute pressure which can be measured with this instrument ?

(b) Describe an optical pyrometer and explain its working.

(c) Name different types of STRAIN GAUGES and explain any one of them with working and diagram.

3 Attempt any two of the following : **6×2=12**

(a) What is COMPARATOR? Explain SIGMA COMPARATOR with diagram.

(b) Describe construction and working principle of AUTO COLLIMATOR.

(c) Explain the principle of INTERFEROMETRY and describe MICHELSON INTERFEROMETER.

4 Attempt any two of the following : **6×2=12**

(a) How is CIRCULARITY or ROUNDNESS of a specimen checked accurately? Describe at least two methods.

(b) How is quantitative evaluation of a surface roughness done? What different methods of such evaluation are used in industry?

(c) What do you mean by STRAIGHTNESS? Describe any one method of measuring straightness of a surface.