

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

Paper ID : 140410

Roll No. 

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**B.TECH.****Theory Examination (Semester-IV) 2015-16****MEASUREMENT AND METROLOGY***Time : 3 Hours**Max. Marks : 100***Section-A**

1. Attempt all parts. All are carry equal marks. Write answer of each part in short. (2×10=20)
- (a) Differentiate between sensor & transducer.
  - (b) What do you understand by sensitivity? Explain liner and non linear sensitivity.
  - (c) Differentiate between active & passive transducers.
  - (d) Enlist different signal display devices & also enlist signal recording devices.
  - (e) What do you understand by range and span?
  - (f) What is comparator?

(1)

P.T.O.

- (g) Name the various methods for measuring pitch diameter.
- (h) What is limit, fit and tolerances?
- (i) What do you understand by interchangeability and standardization?
- (j) What is Pyrometer?

### **Section-B**

**2. Attempt any five questions from this section. (10×5=50)**

- (a) Draw the block diagram of generalized measurement system and explain different stages with examples.
- (b) Explain the principle of capacitive transducers with suitable diagram.
- (c) Explain the working principle & construction of CRO with neat sketch.
- (d) Explain the working principle & construction of LVDT with neat sketch.
- (e) Explain the working of Mcleod gauge (pressure gauge) with neat and clean diagram.

(2)

- (f) Explain the working of resistance strain gauge with quarter weight stone bridge.
- (g) Explain the construction and working principle of laser interferometer with neat diagram. Explain the use of laser interferometer in angular measurement.
- (h) What is the symbol for fully defining surface roughness? Explain each term.

### Section-C

**NOTE: Attempt any two questions from this section.**

**(15×2=30)**

- 3. Explain the static performance characteristics and dynamic performance characteristics of measurement devices. Also classify the errors encountered during the measurement.
- 4. Explain the precautionary measures one shall follow at various stages of using slip gauges. Explain the process of 'Wringing' in slip gauges. Explain why sine bars are not suitable for measuring angles above 45 degrees.
- 5. (i) Explain with a neat sketch, the working of talysurf instrument for surface finish measurement.  
  
(ii) Describe and derive the formula for the three wire method of finding the effective diameter of screw threads.

(3)

P.T.O.