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Roll No. : .....

**B037312(037)**

**B.Tech. (Third Semester) Examination**

**April-May 2021**

**(AICTE Scheme)**

**(Mechanical Branch)**

**MECHANICAL MEASUREMENT and METROLOGY**

***Time Allowed : Three hours***

***Maximum Marks : 100***

***Minimum Pass Marks : 35***

***Note : Attempt all questions. Part (a) is compulsory  
& Attempt any two parts from (b), (c) and  
(d) of each question.***

**Unit-I**

1. (a) What is a sensor? what are the different types of sensors? What is their application? 4
- (b) What are the static performance characteristics of a measuring instrument? 8

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Explain :

- (i) Accuracy
  - (ii) Drift
- (c) What are the different types of errors in a measurement system? What are the different sources of errors? 8
- (d) What is a transducer? What are the different types of transducer? What are the characteristics of a transducer? 8

**Unit-II**

2. (a) Explain the working of a Bellow. 4
- (b) Explain the working of a McLeod Gauge. 8
- (c) What is the function of a Strain Gauge? Explain the working of a Strain Gauge. 8
- (d) Explain the working of a Total Radiation Pyrometer. 8

**Unit-III**

3. (a) What is the objective of a Data Acquisition System? 4

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- (b) Explain the working of an Electromagnetic Flow Meter. 8
- (c) What is the function of a seismic instrument? Explain the working of a seismic instrument. 8
- (d) Explain the working of a Multi Channel Data Acquisition System. 8

**Unit-IV**

4. (a) What is Limit Gauge? How is it used? 4
- (b) What are the methods for the measurement of straightness? Explain any one method for the measurement of straightness. 8
- (c) What are the methods for the measurement of surface texture? Explain any one method for the measurement of surface texture. 8
- (d) Explain the principle, working and application of Tool Makers Microscope. 8

**Unit-V**

5. (a) What is meant by surface texture? Define primary and secondary texture. 4

- (b) What is the working principle of a comparator?  
Explain the working of an optical comparator. 8
- (c) Explain the two wire method for the measurement  
of the effective diameter of a screw thread. 8
- (d) What is a Coordinate Measuring Machine? Explain  
the constructional features of a Coordinate Measuring  
Machine. 8