

**B.Tech. MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**June, 2013**

**BIMEE-015 : INDUSTRIAL MEASUREMENT AND  
QUALITY CONTROL**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Attempt any five questions.*

1. (a) What are the requirements of a strain gauge ? Explain briefly working of mechanical strain gauge. 7
- (b) What is stress ? Explain the procedure for stress measurement by photoelastic. 7
2. (a) Explain the causes of vibration in machines. What are their harmful effects and remedies ? 7
- (b) Name the various instruments which are used for measurement of vibration. Explain the working of vibration amplifier for permanent monitoring. 7
3. (a) List out the different types of tachometers. Explain the working of pneumatic speed transmitting elements. 7
- (b) List various methods that can be used for temperature measurement. Explain briefly working of radiation pyrometer. 7

4. (a) What is a thermistors ? What are their advantages ? 7
- (b) Explain the basic working principle of gas chromatography. 7
5. (a) Explain the working of infrared gas analyser. 7
- (b) What is the difference between direct and indirect measurement ? Explain water level measurement by capacitance prols. 7
6. (a) Explain different types of characteristics of measuring instruments. 7
- (b) Draw a block diagram representation of generalized measurement system. Identify the various elements and functions performed by each element. 7
7. Write short notes on : **3.5x4=14**
- (a) Vibration amplifier
- (b) Optical pyrometers
- (c) Level measurement by robotics
- (d) Hydro pneumatic sensors
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