

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

Term-End Examination

December, 2013

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

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks.

1. (a) What is an optical strain guage ? State their advantages and uses. 7
(b) Explain unbounded strain guages. What is an elastic material ? List some good examples of highly elastic materials. 7
2. (a) Enumerate the methods which are used for the measurements of vibrations. 7
(b) Explain the causes of vibration in machines. What are their harmful effects and remedies ? 7
3. (a) Explain the working of mechanical and electrical tachometers. 7
(b) Describe with a neat sketch the working of an optical pyrometer. 7
4. (a) What are thermo couples ? Explain different types of materials used in thermocouples and their properties. 7
(b) What are the significant characteristics of absorption spectrometer ? What are the basic principles upon which it is designed ? 7

5. (a) Explain working principles of conductivity methods used for measurement. 7
(b) What is the difference between direct and indirect method level measurement ? Explain the working of electrical level guage. 7
6. (a) What is the difference between precision and accuracy ? Explain the main characteristics of measuring instruments. 7
(b) Explain briefly various stages of the general measurement system. 7
7. Write a short notes : **3.5x4=14**
(a) Vibration amplifier for permanent monitoring
(b) Thermo copules
(c) Solid level indicator
(d) Mechano-electrical transformation
-