CH-505 **Roll No.** | | | | | | | | | | |

B. Tech.
(SEM V) ODD SEMESTER EXAMINATION 2015-16
PROCESS INSTRUMENTATION

Time: 2 Hours ***Maximum Marks: 50***

Note: Attempt ***ALL*** questions. Assume suitable data, if required. Each questions has equal marks.

1. Attempt any ***TWO*** parts of the following: **(5x2)**

(a) Describe various types of 'errors' encountered during the evaluation of performance parameters in a system.
(b) Draw a neat diagram of radiation pyrometer and explain its working principle.
(c) Describe the dynamic response of second order type instruments with suitable diagrams.

2. Attempt any ***TWO*** parts of the following: **(5x2)**

(a) Describe the working principle of inclined-tube manometer with the help of a neat diagram.
(b) Explain the theory and construction of Pirani Gauge with their applications and advantages.
(c) Describe the various functional elements in a Bourden tube pressure gauge.

3. Attempt any ***TWO*** parts of the following: **(5x2)**

(a) Describe the working principle of 'Efflux' type viscometer, commonly used in chemical industries.
(b) Discuss any one method for measuring liquid level in a closed vessel with the help of a neat diagram.
(c) Describe the principle and working of a Mass Spectrometer with its application in industry.

4. Attempt any ***TWO*** parts of the following: **(5x2)**

(a) Describe the classification of temperature devices based upon the nature of change produced.
(b) Explain the theory and construction of bimetallic thermometers with their applications.
(c) Explain the principle and construction of the instrument for pH measurement, with the help of a neat diagram.

5. Attempt any ***TWO*** parts of the following: - **(5x2)**

(a) Differentiate between variable head type and variable area type flow meters. Also enumerate their advantages.
(b) Discuss the principle, construction and operation of thermal conductivity cell with the help of a neat diagram.
(c) Describe a McLeod gauge and derive the expression for the unknown pressure.