

Code No: **R32034**

**R10**

**Set No. 1**

**III B.Tech II Semester Supplementary Examinations, Dec - 2015**  
**INSTRUMENTATION & CONTROL SYSTEMS**  
**(Mechanical Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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- 1 a) Discuss the various types of errors. [8]  
b) What is the difference between accuracy and uncertainty? [7]
- 2 a) What are the essential considerations to obtain accurate temperature readings with the minimum dynamic error? [6]  
b) Does it make any difference how the lead wire extensions are connected to thermocouple? [9]
- 3 a) Explain the terms total or stagnation pressure and velocity pressure with the help of dynamic pressures. [5]  
b) Describe the construction, working and theory of McLeod gauge for measurement of high pressures. [10]
- 4 Explain the working of ultrasonic flow meters. Explain the different techniques used for measurement of flow velocity. What are the advantages and disadvantages of these flow meters? [15]
- 5 a) Discuss about the Eddy-current tachometers with neat sketch. [7]  
b) What are the mechanical methods to measure the vibrations explain with neat sketches. [8]
- 6 Explain the function of Rosettes. Explain the working of [15]  
i) Rectangular strain gauge Rosettes,  
ii) Delta type strain gauge rosettes.
- 7 a) Explain with neat sketch the principle of sling psychrometer. [8]  
b) Discuss in detail with neat sketch the working principle of torsion meters. [7]
- 8 Explain the speed control systems with block diagrams and with temperature. [15]

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