

Code No: **R32034****R10****Set No. 1****III B.Tech II Semester Supplementary Examinations, November -2018****INSTRUMENTATION AND CONTROL SYSTEMS****(Common to Mechanical Engineering & Automobile Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions
All Questions carry equal marks**

- 1 a) What is the basic principle of measurement? Explain the functional descriptions of measuring instruments. [8M]
b) State and explain the desirable static characteristics of an instrument. [7M]
- 2 Explain the following with neat sketches. [15M]
i) Piezo electric Transducer
ii) Optical pyrometer
iii) Photo electric transducer
- 3 a) Describe the construction and theory of well type manometers. [8M]
b) Describe the construction and working of a Bourdon tube. [7M]
- 4 a) Explain the functioning of ultrasonic flow meter with a neat diagram. [8M]
b) List out the advantages and limitations of direct method of level measurement. [7M]
- 5 a) Describe the function of a stroboscope and explain how speed of a rotating shaft can be measured by single pattern and multi pattern disc. [8M]
b) Draw a neat sketch of non-contacting optical tachometer and explain the working principle of it. [7M]
- 6 a) Explain the factors affecting the strain measurement. [7M]
b) Drive an equation for gauge factor for a metallic strain gauge. [8M]
- 7 a) What is the importance of humidity control in process industries? [7M]
b) Explain the working of torsion meters with neat sketch. [8M]
- 8 a) What is a servo mechanism? Explain. [7M]
b) With suitable examples, bring out the advantages of closed loop systems over open loop systems. [8M]

