

**Code No: 154BC****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech II Year II Semester Examinations, August/September - 2021****INSTRUMENTATION AND CONTROL SYSTEMS****(Mechanical Engineering)****Time: 3 Hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks****- - -**

1. Explain the static and dynamic characteristics of measurement systems with help of typical examples and sketches. [15]
2. Explain the principle, construction and working of piezoelectric and photoelectric type transducers. [15]
3. Describe the construction and working principle of resistance thermometer and draw the measurement circuit using RTD and explain its working. [15]
4. Explain with neat diagrams, the principle and working of McLeod gauge, and Hot cathode ionization gauges for vacuum measurement. [15]
5. Derive the expression for flow rate of fluids through area flow meter and describe the construction, installation and working of Rotameter. [15]
6. Explain the working of drag cup and electric tachometer type speed measurement techniques. [15]
7. What is a Strain gauge Rosette? Explain the measurement of torque of rotating shaft using strain gauge rosettes with a neat diagram. [15]
8. Draw the block diagram of closed loop control system for speed and position control system and explain its working. [15]

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