

**Code No: 154BC****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech II Year II Semester Examinations, November/December - 2020****INSTRUMENTATION AND CONTROL SYSTEMS****(Mechanical Engineering)****Time: 2 Hours****Max. Marks: 75**

**Answer any Five Questions**  
**All Questions Carry Equal Marks**

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- 1.a) Classify theory and construction of various transducers.  
b) What do you mean by static calibration? Give the steps which are necessary in performing a calibration. [7+8]
2. Categorize different types of errors in measurements and measuring instruments? Explain them. [15]
3. Describe the construction and working of a Bourdon tube. Describe the C type, spiral type and helical type bourdon gauges with neat diagrams. [15]
- 4.a) Explain the working of ionization pressure gauge with a neat sketch.  
b) What are the different laws involved in thermocouples? Explain the working principle of thermocouple in measurement of temperature. [7+8]
- 5.a) Explain the working principle of operation of turbine flowmeter with neat sketch and also list out its advantages and disadvantages.  
b) Explain the construction and working of a vibrating reed tachometer for measuring speed. [8+7]
- 6.a) Explain the working principle of operation of hot wire anemometer with neat sketch.  
b) Explain about cryogenic fuel level indicators. [8+7]
- 7.a) Explain the principle on which working of resistance strain gauge with neat sketch.  
b) What is meant by load cell? How the load cells are used for the measurement of force in a member. [7+8]
8. Distinguish the temperature, speed and position control systems with suitable examples. [15]

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