

**B.E DEGREE EXAMINATIONS: NOV/DEC 2012**

Fifth Semester

**MECHATRONICS ENGINEERING**

MCT107: Process Control And Instrumentation

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. A second order system would be critically damped when
  - a) Damping ratio is less than 1
  - b) Damping ratio is greater than 1
  - c) Damping ratio is equal to 1
  - d) Damping ratio is equal to zero.
2. Measuring the length of a line is a type of
  - a) Primary Measurements
  - b) Secondary Measurements
  - c) Tertiary Measurements
  - d) Electronic Measurements
3. Filled system thermometers operates based on
  - a) Boyle's law
  - b) Continuity equation
  - c) Charles law
  - d) Bernoulli's theorem
4. Elastic transducer used for the pressure measurement is
  - a) Manometer
  - b) Bourdon tube
  - c) Mcleod gauge
  - d) LVDT
5. Bourdon tubes have the advantages of
  - a) high accuracy and good dynamic response
  - b) high sensitivity and good repeatability
  - c) not being prone to shock vibration
  - d) not being susceptible to hysteresis
6. Ring balance manometer measures
  - a) Differential pressure
  - b) Absolute pressure
  - c) Gauge pressure
  - d) Atmospheric pressure
7. Velocity of fluid can be measured using
  - a) Hot wire anemometer
  - b) Bellows
  - c) Bourdon tube
  - d) Manometer
8. Three mode controller is \_\_\_\_\_
  - a) Feed forward controller
  - b) PID controller
  - c) Selective controller
  - d) Inferential controller



- (i) turbine flow meter (7)
- (ii) hot wire anemometer. (7)

24. a) Discuss about the characteristics of continuous controller modes.

**(OR)**

b) Discuss about the following process control:

- (i) Split range control (7)
- (ii) Adaptive control (7)

25. a) Explain about electronic PID controller and compare with pneumatic PID controller.

**(OR)**

b) Explain in detail about the construction and working of stepper motor

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