



**B.E DEGREE EXAMINATIONS: NOV 2015**

(Regulation 2009)

Seventh Semester

**MECHATRONICS ENGINEERING**

MCT120: Design of Mechatronics Systems

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

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

1. Mechatronics design process consist of
  - a) Modeling and simulation
  - b) Prototyping
  - c) Life cycle
  - d) All of these
2. In intelligent supervisory control system, the lowest level is \_\_\_\_\_
  - a) Process control
  - b) Servo control
  - c) Plant control
  - d) Shop floor control
3. \_\_\_\_\_ serial communication cable has the maximum cable length and maximum connection capability
  - a) RS232
  - b) RS485
  - c) RS422
  - d) Ethernet
4. In cantilver beam force measurement, the force F decreases with increase of
  - a) Young's modulus of elasticity
  - b) Height of the beam
  - c) Gauge factor
  - d) Width of the beam
5. Most incremental encoders have two output channels that are 90 degree out of phase. This configuration is called
  - a) Phase encoder
  - b) Quadrature encoder
  - c) Bi- shift encoder
  - d) Binary encoder
6. If tension or compression force is applied to the platform, the wire length and resistance
  - a) Varies
  - b) Remain constant
  - c) Independent
  - d) Cannot be determined
7. The pH level commonly used is from \_\_\_\_\_ to \_\_\_\_\_
  - a) 0,7
  - b) 0,12



**(OR)**

- b) (i) Explain about man machine interface in Mechatronics system. (9)
- (ii) Differentiate between serial and parallel communication. (5)

23. a) Explain the experimental setup for force measurement available in your laboratory?

**(OR)**

- b) Illustrate the operation of two channel optical rotary encoder with a VisSim program.

24. a) State the importance of exposure control and explain about different microprocessors used for controlling the working of camera.

**(OR)**

- b) What is meant by thermal fatigue? Illustrate the working of experimental setup for thermal cycle fatigue test with neat sketch.

25. a) Define fuzzy set. Discuss the application of fuzzy logic in Mechatronics systems.

**(OR)**

- b) Explain about the sensors and their arrangement that can be used in the condition monitoring of a drilling machine?

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