Register No: .....

B.E DEGREE EXAMINATIONS: APRIL/MAY 2011

Sixth Semester

MECHATRONICS ENGINEERING

U07MH603: Design of Mechatronics System

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 & simulation b) Prototyping c) Deployment d) All the above

2. ------- is an expensive one to control skip in CD player

a) Nano dynamic RAM b) Nano static ROM c) Nano static RAM d) none of these

3. ------- that consists of numerous programmable machine tools connected by an automated material handling system

a) DAC b) FMS c) SQC d) CAD

4. ____ as founded by Zader Lotfi

a) Artificial intelligence b) Fuzzy logic c) Neural network d) none of these

5. ------- is the basic process involves in micro sensor fabrication.

a) Thermistor b) RTD c) None of these d) Both a & b

6. ------- is the type of temperature sensor used in De-Icing temperature control system

a) Thermistor b) RTD c) Thermocouple d) None of these

7. In the testing of transportation bridge surface materials load is applied using ____

a) Hammer b) Gravity drop test c) Instron testing machine d) none of these

8. _____ type of actuator used in Skip control of CD player

a) Hydraulic b) Pneumatic c) Induction magnet d) Stepper motor

9. _____ a material handling system that uses independently operated, self-propelled vehicles guided along defined pathways

a) Conveyor b) Cranes c) AGV's d) none of these

10. ------- is the procedure of constraining something from a continuous set of values (such as the real numbers) to a discrete set (such as the integers).

a) Sampling b) Quantization c) Multiplexing d) Threshholding

PART B (10 x 2 = 20 Marks)

11. What is the use of data acquisition system and mention some of their softwares used?
12. What do you meant by fuzzy logic?
13. Define Ph and how it is controlled using Mechatronics system?
14. How do we conduct thermal fatigue test using Mechatronics system?
15. What is the importance of Deicing and how it is done?
16. What is a skip control of CD player?
17. What are the types of robots based on coordinates?
18. Classify the types of strain gauges.
19. What is the sensor used for auto focus?
20. Define Knowledge based system?

PART C (5 x 14 = 70 Marks)

21. a) Explain the different steps involved in Mechatronics design process.

(OR)

b) Describe the needs of ergonomics and safety in Mechatronics?

22. a) Explain about Real time interfacing and the elements of data acquisition system

(OR)

b) Describe the case study on testing of transportation bridge surface materials.

23. a) How is Mechatronics used to control advanced manufacturing systems like FMS? Discuss in detail.

(OR)

b) Describe the working of autofocus camera and explain how Mechatronics system plays a role in it?

24. a) Explain with a diagram the strain gauge weighing system.

(OR)

b) Explain the working of rotary optical encoder with neat sketch.

25. a) Explain about fabrication technique in microsensors.

(OR)

b) Explain about Fuzzy logic in Mechatronics.

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