Code No. 5221 / M

FACULTY OF ENGINEERING

B.E. 4/4 (Mech/Prod.) II-Semester **(Main)** Examination, May / June 2012

Subject : **Mechatronics**
(Elective-II)

Time : 3 Hours Max. Marks: 75

Note: Answer **all** questions of Part - A and answer any **five** questions from Part-B.

PART – A (25 Marks)

1. What is mechanization and automation? Differentiate. (3)
2. What is the drive mechanism used in conveyor system? (2)
3. Explain wear sensors for adaptive control. (3)
4. What are the merits of fluid power control? (2)
5. Differentiate between general purpose and special purpose machines. (2)
6. Differentiate between micro processor and micro controller. (2)
7. What is meant by systems Response? Explain. (3)
8. Explain indexing and orienting devices used in mechatronics systems. (2)
9. How is the design of a mechatronics system differ from a conventional one? (3)
10. Explain multipurpose control machine and their use. (3)

PART – B (5x10=50 Marks)

11. Derive an expression for index for degree of mechanization. What are the degree of mechanizations for various machines ? Explain. (4+4+2)

12. Differentiate between AC servo motors, DC servomotors and stepper motors. Explain the working principle and application of each one in detail. (10)

13. Differentiate between electro hydraulic servo controls and mechanical servo controls. Sketch and explain their use in industry. (10)

14. Explain the machine tool monitoring systems for monitoring the quality of components produced on a machine tool. (10)

15. Explain the elements of mechatronics in Temperature measurement interface and LVDT interface. (10)

16. Explain design of modern CNC machines and indicate various mechatronics elements in it. (10)

17. Write short notes on the following :
    (a) PLC programming (3)
    (b) Hydro-pneumatic circuits (3)
    (c) FANUC and SINUMERIC controls (4)