Question Bank (G scheme)

Name of subject:Mechatronics

Subject code: 17660 **Unit Test: I**

Semester: IE6G **Course: INDUSTRIAL ELECTRONICS**

CHAPTER1: Elements of Mechatronic system(8 marks)

3 marks

1. Write six applications of Mechatronics.
2. Give 6 advantages of Mechatronics.
3. Give 6 disadvantages of Mechatronics.

4 marks

4. Define Mechatronics systems and draw the block diagram of same.
5. Write the note on Evolution of Mechatronics.

CHAPTER2: Sensors and Transducers in Mechatronics(20 marks)

3 marks

6. Give the characteristics transducers.
7. List at least six proximity /displacement /position sensors.
8. Define and give two examples of each, passive and active transducers.
9. Draw and explain capacitive sensors.
10. Draw neatly the optical incremental encoder.
11. Draw different types of pressure transducers.
12. What is the need of signal conditioning?
13. List various Op amp circuits for signal conditioning.
14. Draw and explain principle of fiber optic transducer.

4 marks

15. Draw and explain LVDT with the characteristics
16. List four static characteristics and four dynamic characteristics of Transducers.

17. Explain Hall Effect sensor and write its applications.
18. Draw strain Gauge Load cell and explain.
19. Write the principle of thermocouple and draw the diagram of signal condition using thermocouple.
20. Draw characteristics of noise avoiding signal conditioning circuits in Mechatronics systems.
21. What is the need of analog to digital conversion and list various ADCs that are used in Mechatronics systems.

CHAPTER3: Controllers in mechatronics systems (20marks)

3 marks

22. What is the need of controllers in a Mechatronics system?
23. What are various input devices of PLC ?
24. Write advantages of PLC.
25. Draw the block diagram of CNC.
26.. what are various Output devices of PLC ?

4 marks

24. Explain Input module and Output module of PLC.

25. Draw the sinking diagram of input module of PLC

26. Draw the sourcing diagram of output module of PLC

27. Write any eight applications of PLC

28. Write advantages and disadvantages of CNC

29. Write the functioning of the following codes.

G00, G90,G71, G74, M02, M04, M07, M08.

30. Draw the interfacing diagram of stepper motor using microcontroller.

31. Write the program of stepper motor along with comments.

32. Draw the block diagram of Microcontroller.