Question Bank (G scheme)

Name of subject: MECHATRONICS

Subject code : 17660 **Unit Test:II**

Semester : VI **Course : IE**

CHAPTER 3Controllers in Mechatronics systems

3 Marks

1. Classify the controllers with respect to Electronic, Pneumatic and Hydraulic.
2. Draw and explain Hydraulic proportional controller.
3. Draw the labeled diagram of ON-OFF Pneumatic controller.
4. Draw the labeled diagram of Pneumatic proportional controller.

4 Marks

5. Draw the labeled diagram of pneumatic PID controller
6. Draw and explain Hydraulic proportional controller.
7. Draw and explain Hydraulic Integral controller.
8. Draw and explain the block diagram of Fuzzy logic controller.
9. List fuzzy logic applications and draw the diagram of any one of them.
10. List the parameters to be considered while designing the Fuzzy controller.

CHAPTER 4 Actuating Elements

3 Marks

11. List various physical components of Hydraulics actuating systems.
12. Write advantages and disadvantages of Gears.
13. Write six applications of Gears.
14. List various types of mechanical Gears.
15. Write six applications of Cams
16. Write the advantages and disadvantages of chains.
17. Draw the diagrams of hoisting and hauling chains and write the materials that are used.

4 Marks

18. List various Hydraulic actuators and draw the diagram of single acting and double acting cylinders
19. Draw the diagram and explain a finite position control valve.
20. Draw and explain the block diagram of Hydraulic actuating system.
21. Draw and explain the block diagram of Pneumatic actuating system.

CHAPTER 5 Robotics and MEMS

3 Marks

22. Define work envelop and DOF with respect to Robot.
23. List various types of Robots and name their work envelop.
24. Draw Jointed arm Robot . Show the DOF and also draw the work envelop.
25. Write 3 advantages and 3 disadvantages of Hydraulic drive systems.
26. List any six advantages of Electric drive system.
27. Draw the block diagram of MEMS and explain each block.
28. List the manufacturing process of MEMS and explain any one of them.

4 Marks

29. Draw Hydraulic drive system of a robot and also draw hydraulic power supply.
30. Draw the block diagram and explain the electric drive system in electric robots.
31. Write the advantages and disadvantages of pneumatic drive robot system.
32. List the end effectors of Robots.
33. Write the selection parameters of a robot.
34. List various fields of applications of robots.
35. Explains MEMS Accelerometer diagrammatically in detail and write its applications.
36. Write the advantages of MEMS.
37. Write 8 applications of MEMS in automobile engineering.
38. Write 8 applications of MEMS in process andmanufacturing Industry.

CHAPTER 6Integration of Mechatronics system

3 Marks

39. Draw the block diagram of microprocessor based antilock braking system.
40. Draw the block diagram of PLC based Pick and place robot.

4 Marks

41. Draw the block diagram , working and operation of CNC based drilling M/C
42. Write the block diagram of PLC based car parking barrier system and explain the same.