

Question Bank

Mechatronics

(5th Sem)

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DEPARTMENT OF MECHANICAL ENGINEERING

CHAPTER 1.0 INTRODUCTION TO MECHATRONICS

02/03 Marks Question

- 1 Define Mechatronics.
- 2 Write 05 application of mechatronics.
- 3 Write 05 advantage of mechatronics.
- 4 Write 05 disadvantage of mechatronics.
- 5 Write 05 Scope of Mechatronics in Industrial Sector.
- 6 Name the various components of mechatronics system.
- 7 What is the use of control unit in mechatronics system.
- 8 Define actuators. Give 02 examples of actuators used in mechatronics system.
- 9 Define sensors. Give 02 examples of sensors used in mechatronics system.
- 10 Give example of components used as input signal conditioning and interfacing
- 11 What are the various graphical display devices used in mechatronics system?

05/10 Marks Question

1. What is the Importance of Mechatronics in automation?
2. Explain the various Components of a mechatronic system and their function.
3. Write the application of mechatronics.
4. Write the various advantages and disadvantages of mechatronics.
5. Write the scope of mechatronics in Industrial sector.

CHAPTER 2.0 SENSORS AND TRANSDUCERS

02/03 marks Question

1. Define Sensors. Give example.
2. Define transducers. Give example.
3. Describe the function of transducers.
4. Describe the function of actuator with an example.
5. Classify transducers.
6. Define and write the advantages of electromechanical transducers.
7. What is Transducers actuating mechanisms.
8. What is Displacement or Position sensors. Give example.
9. What are Velocity, Motion, Force and Pressure sensors. Give example.
10. What are Temperature and light Sensors. Give example.

05/10 Marks Questions

1. Classify transducers and explain each of them.
2. Define Sensors. Classify and explain them.
3. Describe the various function of transducers and sensors with examples.

CHAPTER 3.0 ACTUATORS-MECHANICAL, ELECTRICAL

02/03 Marks Questions

1. Define mechanical actuators.
2. Define machine.
3. Define Kinematic link.
4. Define Kinematic pairs.
5. Write the characteristics and types of link.
6. Classify kinematic pairs on nature of relative motion between the element.
7. Classify kinematic pairs on the nature of contact between elements.
8. What is a slider crank mechanism?
9. Define Gear? Write it's types.
10. Define Belts. Write it's types.
11. Define bearing and classify it.
12. Write the function of bearing.
13. Write the function of belts and gears.
14. What is an electrical actuator?
15. What are switches and relays?
16. Define DC and AC motors.
17. Classify AC motors.
18. What are stepper motors?
19. What are servo motors?

05/10 Marks Questions

1. Define bearing, classify it and explain each type.
2. Define gears, classify it and explain each type.
3. Define belts, classify it and explain each type.
4. Classify AC motors and explain them.
5. Define AC motors and explain it's working principle.
6. Define DC motors and explain it's working principle.
7. Define stepper motors and explain it's working principle.
8. Define servo motors and explain it's working principle.

CHAPTER 4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)

02/03 Marks Questions

1. Define PLCs.
2. Write 05 advantages of PLCs.
3. Write 05 uses of PLCs.
4. What are the criteria to select a PLC?
5. What are Master and Jump Controllers?
6. What is Mnemonics?
7. Name 03 PLC programming methods.

05/10 Marks Questions

1. Describe the components of PLCs and explain them briefly.
2. Define, classify and Describe PLC languages and methods.
3. Classify PLC Input and Output Modules.

CHAPTER 5.0 ELEMENTS OF CNC MACHINES

02/03 Marks Questions

1. Define NC machines.
2. Name the various parts of NC machine.
3. What is a CNC machine?
4. What is the function of CNC machine?
5. What are the advantages of CNC machine?
6. What is the disadvantage of CNC machine?
7. What is the application of CNC machine?
8. What is CAD? Write its 03 advantages.
9. What is CAM? Write its 03 advantages.
10. What are the software and hardware of CAD/CAM.
11. Write Functioning of cad cam systems.
12. Features and characteristics of CAD/CAM system
13. What is machine structure?
14. What are guideways and slideways?

05/10 Marks Questions

1. Write advantages and disadvantages of CAD/CAM.
2. Describe CAD/CAM, working and their application.
3. Name the various parts of NC machine and explain them.
4. Write a note on CNC machine, their advantages, disadvantages and applications.
5. Explain the various elements of CNC machine.
6. Classify Guideways/slideways and explain them.
7. Define drives, classify them and explain briefly.
8. Define bearings, classify them and explain briefly.
9. Explain about spindle and spindle bearings.

CHAPTE 6.0 ROBOTICS

02/03 Mark Questions

1. Define Robotics.
2. Write the functions of a robot.
3. Write the laws of robotics.
4. Write the various types of industrial robots.
5. What are the different robotic systems?
6. Write the advantage of robots.
7. Write the disadvantage of robots.

05/10 Mark Questions

1. Write the advantages and disadvantages of robotics.
2. What are the different robotic systems? Explain each of them briefly.
3. Write the various types of industrial robots. Explain each of them briefly.