**Introduction**

1. List out the various Reasons for automation.
2. Explain automation migration strategies.
3. What is automation? Explain types of automation.
4. List out various feasibilities of automation in Indian market.
5. What is the USA Principle? What does each of the letters stand for?
6. Explain Ten Strategies for Automation and Process Improvement.
7. Define Automation. Discuss various types of automation.

**Group Technology**

1. List out various application of group technology.
2. Define Key Machine and differentiate between group technology and cellular Manufacturing.
3. Explain OPTIZ classification and coding system with suitable example.
4. Explain types of part classification and coding systems used in group technology.
5. What is Group Technology? Explain methods of grouping parts into part families in brief.
6. List out different applications of group technology.

**Flexible Manufacturing Systems**

1. What is FMS? Explain the basic components of FMS.
2. Explain the types of flexibilities in FMS. State the factors on which these flexibility depends.
3. Explain AGVS associated with FMS.
4. Explain ASRS system used in FMS.
5. Write a short note on automatic storage and retrieval systems and their applications areas in FMS.
6. Explain flexible fixturing.
7. List out different types of material handling equipment.

**Pneumatic and Hydraulic System Design**

1. List out various components used in hydraulic and pneumatic system.
2. List out various types of rotary actuators and explain any two in brief.
3. Explain the different application of pneumatic and hydraulic system used in Automation.
4. List out limitations of pneumatics and hydraulic in automation systems.
5. Explain basic components used in pneumatic and hydraulic automation system.

**Industrial Robotics and Mechatronics System**

1. Explain the advantages, limitation and application of robot.
2. Enlist and explain different elements of robot with neat sketch.
3. Differentiate between End Effectors and Manipulators used in robot.
4. Which parameters are to be considered for robot specification and selection of robot?
5. Explain various methods of robot programming.
6. List the robot configurations.
7. Explain various sensors and actuators used in robots.

**Automated Machinery**

1. Explain in brief automated transfer machine and its application.
2. Explain the various elements of CMM in brief.
3. What is AGV? Explain working principles of AGVs.
4. Explain the role of CMM in computer aided quality control. What are different elements of CMM?
5. How mechanical feeding is replaced by automation?
6. List the merits and demerits of the automations in production systems.

**Modular Automation Design**

1. What is modular automations?
2. What do you mean by modular automation? Explain with suitable example for machine shop.
3. Explain different automated flow lines used for modular automation.
4. Why does automation need in foundry shops?
5. State the different reasons to implementing automation in press shop.

**Automation Economy**

1. Explain effect of automation on economy.
2. Explain scope of automation in Indian industries.
3. Discuss the effects of automation on economy for Indian market.