

ME8094 COMPUTER INTEGRATED MANUFACTURING SYSTEMS

IMPORTANT QUESTIONS AND QUESTION BANK

UNIT-I INTRODUCTION

2-Marks

1. Give few elements of CIM.
2. Explain the objectives of implementation.
3. Give the reasons for implementing CAD?
4. Write the various methods for representing the solids in CAD.
5. Compare surface modelling & solid modelling.
6. Explain specific characteristics that have to be incorporated in CIM models?
7. What is computer integrated manufacturing systems?
8. Define the drawing features of CAD package?
9. Define advantage of solid modelling.
10. Define cycle time in manufacturing.
11. Define bottleneck station
12. Define production capacity.
13. Utilization in manufacturing plant?
14. Define availability
15. Define manufacturing lead time.

13-Marks

1. Explain the following terms and brings out their difference between CAM and CIM.
2. Define CAD. Explain in detail about the various design related tasks performed by CAD.
3. What are the benefits and application of CAD?
4. Explain how CIM can act as an enabling technology for concurrent engineering?
5. Explain the hierarchical structure of computerized elements of CIM.
6. Explain the importance of CIM. Also write the reason for implementing CIM & its types.
7. Discuss about seven forms of waste in production and methods to eliminate them.
8. Explain in detail about Kanban system and its types with example?
9. Explain about just-in-time delivery?
10. Explain in detail about difference level of automation?

**UNIT-II PRODUCTION PLANNING AND CONTROL AND COMPUTERISED
PROCESS PLANNING**

2-Marks

1. Define process planning in manufacturing system.
2. Give any four function of production planning and control.
3. Define inventory management.
4. List any two advantages of CAPP.
5. What is master production schedule?
6. What are the types of inventories?
7. What is the variant approach in CAPP?
8. Draw the structure of an MRP system.
9. What is meant by CAPP system?
10. What are the inputs of MRP system?
11. Define CAPP.
12. Write the different stages of shop floor control.
13. What is MRP-II
14. Define master production schedule.
15. Mention the importance of shop floor control system.

13-Marks

1. Explain in detail about CMPP. In what ways CMPP is considered very significant. What factors should be considered while selecting the best CAPP system?
2. Explain in detail about production planning process in discrete part manufacturing.
3. Define MRP. Explain the inputs to MRP and various MRP outputs. Also list the various benefits of MRP.
4. Explain in detail the phases of shop floor system.
5. List the benefits of CAPP?
6. Explain in detail about the function of PPC.
7. Explain the importance and derives that are required for shop floor control.
8. Discuss the problems associated with traditional production planning and control.
9. Explain the four classes of users in MRP.
10. Discuss the need and importance of shop floor data collection systems? What are their functions?

UNIT-III CELLULAR MANUFACTURING

2-Marks

1. Define cellular manufacturing.
2. Difference between FMC & FMS system?
3. Give the reason for using a coding scheme in group technology?
4. What are the objectives of FDC system?
5. What is group technology?
6. Explain Opitz coding system?
7. List the factors to be considered in selection of coding system.
8. Write the main elements of flexible manufacturing system.
9. What do you mean by cellular manufacturing?
10. Define the various types of layouts used in FMS design?
11. Give some important advantages of implementing FMS?
12. What are the techniques available for formation of cell in GT?
13. What are the benefits of GT?
14. Define GT.
15. Define part family.

13-Marks

1. List the benefits & application of group technology.
2. Briefly explain the MICLASS and OPITZ coding system with suitable examples.
3. Discuss the production flow analysis in detail.
4. Explain cellular manufacturing in detail.
5. Explain machines cell design and layouts.
6. Explain OPITZ parts classification and coding system.
7. Describe the following:
 1. Opitz coding system
 2. composite part concept
8. Apply rank order clustering technique to the part machine incidence matrix to arrange parts and machine into groups

Machine	part							
	A	B	C	D	E	F	G	H
1	1	1	1	1				1
2					1	1	1	
3	1	1	1		1			1
4		1		1		1		
5	1			1	1		1	1
6			1				1	1

9. Discuss with examples of the following code: Mano code, poly code, mixed code.
10. Explain the product flow analysis.

**UNIT-IV FLEXIBLE MANUFACTURING SYSTEM (FMS) AND AUTOMATED
GUIDED VEHICLE SYSTEM (AGVS)**

2-Marks

1. What are the different components of FMS?
2. What is the difference between FMC & FMS system?
3. What are the main elements of flexible manufacturing system?
4. Write the objectives of FDC system?
5. Differentiate between dedicated FMS & random order FMS.
6. What are the various types of layouts used in FMS design?
7. Give some important advantages of implementing FMS?
8. Define flexible manufacturing system.
9. What are the three capabilities that a manufacturing system must possess in order to be flexible?
10. What are the four tests of flexibility that a manufacturing system must satisfy in order to be flexible?
11. Name the four benefits that can be expected from a successful FMS installation?
12. What is the application of AGVS?
13. What are the types of AVGs?
14. State any four benefits of FMS.
15. What is the material handling equipments in FMS?

13-Marks

1. Explain in detail about flexibility and its types.
2. How AGVs are guided?
3. What are the safety systems in AVGs?
4. Explain the components of FMS.
5. Explain in detail about FMS layout.
6. Define FMS and explain in detail about the FMS components.
7. Explain vehicle guidance technology in AVGs.
8. How far the AVGs advantageous over other material handling systems?
9. Discuss the AVGs pallets trucks with its application.
10. Discuss the application, advantage & disadvantage of an FMS?

UNIT-V INDUSTRIAL ROBOTICS

2-Marks

1. Define industrial robot
2. Give the five joint types used in robotic arms and wrists?
3. Write the common body-and-arm configuration?
4. Define work volume of a robot manipulator?
5. What is a playback robot with point-to-point control?
6. Define an end effector?
7. What are the advantages of dual gripper over a single gripper?
8. Robotics sensor are internal and external. What is detection?
9. Define palletizing operation?
10. Define robot program.
11. What is control resolution in a robot positioning system?
12. Difference between repeatability and accuracy in a robotic manipulator?
13. What is the difference between powered lead through and manual lead through in robot programming?
14. Classify the robot control system.
15. Differentiate between world and tool coordinate system in robotics with simple sketch.

13-Marks

1. Explain in detail about the difference types of robots.
2. Sketch and explain the four basic robot configurations classified according to the coordinate system.
3. Briefly about the working principle of position sensors with neat sketch.
4. Detail about the robot programming languages.
5. Sketch and explain the various parts of a robot.
6. Explain the types of mechanical joints commonly used in industrial robot construction with neat sketch.
7. Explain about any three types of robot control systems
8. Explain in detail about the types of robot part programming.
9. 1. Explain the various robotic applications.
2. comment on repeatability and accuracy in robotics.
10. Sketch the following manipulator configurations.
 1. TRT: R
 2. TVR: TR
 3. RR: T