

SCSVMV UNIVERSITY

DEPARTMENT OF MECHANICAL ENGINEERING

SUBJECT NAME: COMPUTER INTEGRATED MANUFACTURING

QUESTION BANK

UNIT-1

PART-A

1. Define CIM.
2. State the objectives of CIM.
3. List the various network topologies?
4. What are the Three Phases of Analog- to- digital Conversion.
5. State the functions of a Multiplexer.
6. State any four important benefits of computer integrated manufacturing.
7. Name the types of communication in CIM.
8. State any two benefits of process monitoring through computers.
9. What is meant by Adaptive Control?
10. Define CAM.
11. What are the benefits of CAD to design and manufacturing Engineers?
12. What are the various networking techniques in use?
13. Explain the LAN with an example.
14. What is the need of CAM?
15. What are the elements of CIM?
16. Compare the NC and CNC systems.
17. What is a DNC system? How does it differs from a CNC system?
18. Explain the Term Adaptive Control System and how this system minimizes the machining time.
19. Give the components of NC system.
20. What are the data required for Part Programming?
21. State the fundamental terminologies used in Computer Communications.
22. Why Layered Structures are used in CIM?
23. What is the difference between the MAP and TOP?

PART-B

1. Sketch and explain the CASA / SME model of CIM.
2. Discuss the nature and role of CIM elements.
3. Discuss about the evolution of CIM with suitable sketch.
4. Write a Critical note on the CIM data transmission methods.
5. Explain briefly the seven layers of Manufacturing Automation Protocol – MAP.
6. Explain the elements of NC, CNC and DNC machines with neat sketch.
7. Explain and compare the various Computer network Topologies.
8. Explain the integrated CAD/CAM organization.
9. Discuss about the Network Topologies used in CIM Systems.
10. Describe the CIM Hardware and Software in detail.
11. Explain the CIM Communication Matrix with suitable sketch.
12. Write short notes on the Seven layers of OSI Model.

UNIT-2

PART-A

1. Define Automation
2. Briefly Explain the Types of Automation
3. Classify the Manufacturing Industries
4. Differentiate Converter and Fabricator.
5. Define WIP.
6. State the characteristics features of Programmable Automation.
7. What is the difference between Production Planning and Process Planning?
8. Give an example for Mass, Batch and Job Shop Production.
9. What do you mean by Production capacity and capacity planning?
10. Mention the Mathematical Models of manufacturing Concept.
11. Define the terms Manufacturing Lead Time.
12. Define Production Rate and productivity.
13. What is Line Balancing?
14. List the methods of line balancing.
15. What is Transfer Machine?
16. What are the advantages of Transfer machine?

PART-B

1. State the Major Reasons for Automating the Manufacturing facilities
2. Explain the objectives, Arguments and strategies of Automation.
3. With suitable examples, explain the characteristics and features of the three types of Automation.
4. Classify and explain about the Manufacturing Industries with suitable sketches.
5. Describe the working of Transfer Machines.
6. Describe the Line Balancing Methods with suitable example.
7. Explain the three basic categories of manufacturing industries.

UNIT-3

PART-A

1. Define FMS.
2. State the functions of FMS Components.
3. What are the advantages of FMS.
4. What is the advantage of Rectangular layout over loop Layout.
5. Differentiate between Volume flexibility and product mix flexibility
6. Write down the areas of applications of group technology.
7. List any four benefits and applications of FMS.
8. State the application of FMS.
9. Name the various Coding System used in GT.
10. Define Group Technology.
11. Define Part Family.
12. Define Machine Cell.
13. What are the benefits of GT?
14. What are the objectives of GT?
15. What are the methods adopted to Group the parts into Part Families in GT?
16. What are the various material Handling Equipments used in FMS?
17. What are the Applications of AGV?
18. What are the various design and manufacturing attributes used as a basis for parts classification and coding in GT?
19. Mention the important Classification and Coding system.
20. Explain the concept of Part Families.
21. Difference between FMC and FMS.

PART-B

1. Explain the Step-by step procedure in Production Flow Analysis.
2. Explain the Parts Classification and Coding System used in GT.
3. Write a short note on the part classification and coding system.
4. With a neat sketch, explain the various FMS layout configuration.
5. Write a note on the Control objectives in supervisory computer control in FMS.
6. Explain the Classification of FMS and the test of flexibility for each type.
7. Explain the types of Flexibility in manufacturing.
8. Explain the functions of FMS Control Systems.
9. Discuss about the benefits and applications of FMS.
10. Explain any one Classification and coding system in GT.
11. Discuss any five FMS Workstations.
12. Discuss about the AGVS used in FMS.
13. Describe the working methodology of AS/RS with neat sketch.

UNIT-4

PART-A

1. Define CAPP.
2. Define Aggregate Production Planning.
3. What are the advantages of CAPP over conventional Methods?
4. What is meant by Process Planning? What are the types of Process Planning?
5. Distinguish between the Retrieval and Generative type CAPP.
6. Briefly explain the Factory Data Collection System.
7. What are the uses of Master Production schedule MPS?
8. What are the information stored in Material Requirement Planning database?
9. Define MRP II.
10. Briefly explain the JIT philosophy.
11. What is the difference between the MRP and MRP II.
12. What is meant by Shop Floor Control?
13. List the commonly used Automated data Collection system.

PART-B

1. Describe the role and benefits of MRP-I and MRP-II.
2. What are the functions of Process Planning?
3. Differentiate between Retrieval CAPP and Generative CAPP.
4. Describe the activities of production planning system and their relationship.
5. Explain the functions of MRP with an example.
6. Explain the structure and working of MRP system.
7. Discuss about the Advantages and Disadvantages of Automatic Data Entry Technologies.

UNIT-5

PART-A

1. What is purpose of Advanced Manufacturing System?
2. Name the Types of AMS.
3. Compare Lean Production with Mass production.
4. What is Agile Manufacturing?
5. What is the concept of Virtual Machine Cells?
6. What is an Expert System?
7. Differentiate the Agile and Lean Manufacturing.
8. Explain the term Intelligent Manufacturing System.
9. What is Green manufacturing?
10. Define Virtual Manufacturing.
11. What are the advantages of Virtual Manufacturing?
12. Mention the simulation software used in Manufacturing Systems.

PART-B

1. Describe the benefits of Lean Manufacturing.
2. Write short notes on Virtual manufacturing.
3. Describe the principle and Applications of AI and Expert Systems in CAM systems.
4. Discuss the importance of Lean Manufacturing Techniques.
5. Broadly distinguish between the Lean, Agile and Virtual Manufacturing.