



DEPARTMENT OF MECHANICAL ENGINEERING
ME6703-COMPUTER INTERGRATED MANUFACTURING SYSTEM
QUESTION BANK

Unit –I - Computer Aided Design
PART-A

1. What are the components of manufacturing system?
2. List the reasons for implementing CAD Software.
3. What are the components of a CAD system.
4. Distinguish between reflection and scaling transformation.
5. What are the advantages of solid modeling.
6. List some of the drawing features in CAD packages.
7. What is sculptured surface.
8. What is JIT?
9. Differentiate IGES and GKS graphic standards.
10. What is meant by geometry and topology.
11. What is meant by monocodes and polycode structures.

PART-B

1. What are the functions of a graphics package.
2. Describe about operator input devices used at the graphics workstation.
3. Write SN on 3D Shearing geometric transformation and 3D Scaling.
4. Explain with suitable, how a solid model is generated using boundary representation and write the advantages of solid modeling.
5. Explain the benefits of CAD system.
6. Define CAD.
7. Enumerate the typical applications of CAD/CAM.
8. Discuss about the lean production with illustrative example
9. Discuss pull system of production control in JIT
10. List the benefits of implementing Computer Graphics in Product design
11. Write 3-Dimensional Matrix Transformations.
12. Define 2D Scaling, Rotation, Reflection?
13. Differentiate between uniform scaling and non-uniform scaling
14. What is geometric transformation
15. Define Clipping, Rendering, Translation
16. Mention some basic type of geometric transformation
17. What are the fundamental reasons to implement computer aided design system.



18. Explain in detail the geometric modeling techniques
19. Explain the design process in CAD
 20. Explain the application of computer for design
 21. List the modeling approaches used in CAD packages and explain them in detail
 22. Explain in detail the characteristics of solid modeling packages
 23. Explain the computerized element of CIM
 24. What is automation?
 25. What is lean production
 26. What are the differences between lean production and mass production
 27. What are the functions of manufacturing support systems?
 28. Write the different types of production
 29. What is meant by CIM?
 30. List the various components of CIM.

UNIT 2- PRODUCTION PLANNING AND CONTROL AND COMPUTERIZED PROCESS PLANNING

PART A

1. What is engineering change control?
2. What are the benefits of Computer Aided Process Planning.
3. What is meant by CAPP?
4. What is CMPP system?
5. List any two benefits of CAPP.
6. List the Objectives of Planning and Control
7. What is SFC?
8. Explain the phases of SFC
9. Differentiate Generative and Variant approach?
10. Explain Inputs and Outputs of MRP.
11. List the methods of computer aided process planning.
12. Give the main component of generative CAPP systems.

PART-B

1. Differentiate the underlying concepts of variant and generative CAPP systems
2. What is MRP II?
3. What is scheduling, dispatching, expediting?
4. Define the term machine loading & job sequencing.
5. Explain Production planning and Production control?
6. Explain inventory management.



7. Explain logical steps in CAPP.
8. List the methods of computer aided process planning.
9. Describe variant process planning
10. Describe generative process planning
11. What are the basic approaches of CAPP?
12. What are the phases of SFC?
13. Write down the major functions of PPC
14. Explain manufacturing resource planning. (MRP II)
15. With suitable illustrative example explain master production schedule.
16. Discuss ERP with suitable model.

UNIT III
CELLULAR MANUFACTURING

PART-A

1. Define Group Technology (GT).
2. List out the stages in Group Technology.
3. List out the techniques available for formation of cell in GT.
4. State the role of GT in CAD/CAM Integration.
5. What is part family
6. Explain OPITZ coding system.
7. By whom and when was group technology first documented.
8. What is the main difference between hierarchical codes and attribute codes?
9. Provide examples for classical grouping of parts.
10. Explain the two categories of attributes of parts.
11. What are the three basic code structures used in GT applications.
12. List out the premises for the development of DCLASS code.
13. What is PFA?
14. What are the applications of GT.?

PART-B

1. a) Discuss the principle and advantages of group technology coding.
b) Classify a component using either OPITZ or MICLASS system.
2. Discuss how group technology is used in designing manufacturing cells.
3. Discuss the parts classification and coding structure employed in-group technology.
4. a) Explain about parts classification and coding.
b) Explain about OPITZ CODING system.
5. a) Explain composite part concept in cellular manufacturing.
6. Explain the methods of part family formation with a suitable illustration and discuss with examples the coding system structure.



UNIT IV

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

PART-A

1. Differentiate between FMS and FMC
2. What are the technologies used for automatic data collection. (Nov/Dec-2009, 2010, 2011)
3. List the three major subsystems in FMS.
4. Define FMS.
5. Define FMC.
6. List the benefits of FMS.
7. List down the major elements of FMS
8. List the function of FMS computer control system.
9. List the types of data associated with the FMC
10. Write any two applications of FMS.
11. List the typical FMS layout subsystems.
12. What is PDM? List the functions of PDM software.
13. What are the functions of PPC.
14. List the advantages of PDM.
15. What are the types of FMS layout.
16. What is the function of Computer control system.
17. What are the types of data files required for a FMS.
18. What is meant by online and off- line data collection system.
19. Classify FMS according to the kind of operations performed.

PART-B

1. What are the types machines used in FMS workstations? Describe them.
2. Explain AGV? Mention its application. Illustrate with suitable example used in Shop floor.
3. Explain the component of FMS and FMS layout configuration.
4. Write an engineering brief about the various types of automatic identification technologies
5. Write SN on various materials handling equipment that are commonly used in a FMS.
6. Explain about factory data collection system.
7. a) Explain about FMS workstation.
b) List the applications of FMS.
8. a) Explain the functions of FMS Computer control system.
b) Discuss application, advantages and disadvantages of a FMS.



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UNIT – V

INDUSTRIAL ROBOTICS

PART- A

1. Define End effectors.
2. What are the methods of Robot programming?
3. What is a teach pendant?
4. What is a tactile sensor? List the types of Tactile Sensors?
5. Name the different types of robot control system.
6. What is meant by Accuracy of the robot?
7. What is a Sensor?
8. Differentiate between a transducer and a sensor.
9. What is a Vision Sensor?
10. Write some motion commands in VAL II.
11. Define Manipulator.
12. What are the types of mechanical grippers?
13. List some of the Robot programming languages.
14. What is meant by Robot anatomy

PART – B

1. Briefly explain the different types of robots.
2. i) write short notes on Joint Notation Scheme.
ii) Write short notes on technical specification in Robotics.
3. Explain robot parts and their functions with neat sketch
4. Explain Various Industrial Applications of Robots.
5. Explain the four common Robot configurations with neat sketch.
6. (i) Explain the robot and End effector interface functions.
(ii) Discuss the factors that can be influenced in the selection of gripper.
(iii) Explain about selection and design considerations of gripper.
15. Describe the classifications of sensors and the factors to be considered for its selection.
8. (i) Explain in detail the tactile and non tactile sensors.
(ii) Briefly explain the working principle of Range sensors with neat sketch.
9. Explain the different types of programming methods in detail.
10. Briefly explain the generations of Robot Programming Languages in detail.
11. (i) Explain the teach pendant for Robot system
(ii) Explain Lead through methods.