M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024 (JAN - 2025)

First Semester

ME - CAD/CAM

24PCDPC102 - COMPUTER AIDED TOOLS FOR MANUFACTURING

Regulations - 2024

Duration: 3 Hours   Max. Marks: 100

PART - A (10 × 2 = 20 Marks)
Answer ALL Questions

		Marks	K–Level	CO
1.	Differentiate Point to point and continuous Path manufacturing.	2	K2	CO1
2.	Define APT in NC programming.	2	K1	CO1
3.	How does CAPP support the development of manufacturing processes?	2	K2	CO2
4.	What is the purpose of CAM-I in CAPP systems?	2	K2	CO2
5.	What are the general methods used for LIMITS and FITS?	2	K1	CO3
6.	What is the main difference between Tolerances analysis and Tolerances synthesis?	2	K2	CO3
7.	What is Reverse Engineering (RE)?	2	K1	CO4
8.	What is the difference between a surface model and a solid part model?	2	K2	CO4
9.	Illustrate Recycling real time embedded software.	2	K2	CO5
10.	What is the need for RE assembly programs?	2	K1	CO5

PART - B (5 × 13 = 65 Marks)
Answer ALL Questions

				Marks	K–Level	CO
11.	a)		Explain the basic drill canned cycle with example and diagram.	13	K2	CO1
			OR			
	b)		Briefly explain about Cellular Manufacturing processes with neat diagrams.	13	K2	CO1
12.	a)		Explain the various approaches of computer aided process planning.	13	K2	CO2
			OR			
	b)	i)	Explain the CAM-I and D-class in CAPP.	8	K2	CO2
		ii)	Explain the criteria for selection of CAPP systems.	5	K2	CO2
13.	a)	i)	What are geometric tolerances? Explain how they differ from conventional tolerances?	8	K2	CO3
		ii)	What is tolerance analysis, and why is it important in product design? Explain.	5	K2	CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create   ***13349***

OR

b) Explain various non-contact, non-optical inspection methods used in Computer-Aided Quality Control (CAQC) systems. *13 K2 CO3*

14. a) What are the key tools used for Reverse Engineering (RE)? Describe their functions and how they assist in the reverse engineering process. *13 K2 CO4*

OR

b) i) Explain the various digitizing techniques used in reverse engineering. *6 K2 CO4*

ii) What is a Coordinate Measuring Machine (CMM), and how is it used in reverse engineering for feature capturing? Explain. *7 K2 CO4*

15. a) Explain the various strategies employed in reverse engineering data management. *13 K2 CO4*

OR

b) Write short notes on:

i) Rule based detection for RE user interface. *7 K2 CO4*

ii) RE of assembly programs. *6 K2 CO4*

PART - C (1× 15 = 15 Marks)

16. a) Write a simple manual program for following diagram. *15 K3 CO1*
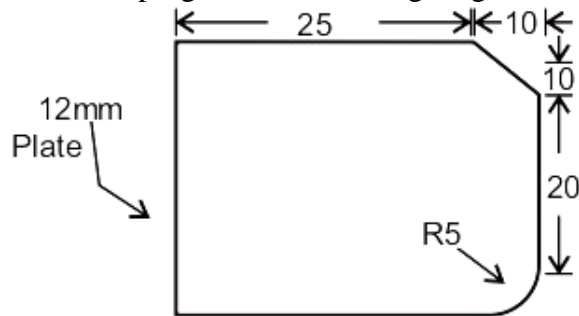
OR

b) Develop a strategic plan for implementing a CAPP system in a factory that produces a wide range of custom-designed products. *15 K3 CO2*