Reg. No.												

Question Paper Code	12154

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Sixth Semester

Mechanical Engineering

ME8691 - COMPUTER AIDED DESIGN AND MANUFACTURING

(Regulations 2017)

Duration: 3 Hours Max. Marks: 100

PART-A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	What are the advantages of Concurrent engineering?	*2,K1,CO1*
2.	What are the main types of 2D transformations?	*2,K1,CO1*
3.	Distinguish between Bezier curves and Cubic Spline curves.	*2,K2,CO2*
4.	Name the two basic approaches followed in solid modeling.	*2,K1,CO2*
5.	Outline the functions of GKS.	*2,K2,CO3*
6.	What is Open Graphics Library?	*2,K1,CO3*
7.	Write the difference between G-code and M-code in CNC programming, and provide an example of each.	*2,K2,CO4*
8.	How does NC differ from CNC?	*2,K2,CO4*
9.	What is cellular manufacturing?	*2,K1,CO5*
10.	Give the benefits of FMS.	*2,K1,CO5*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

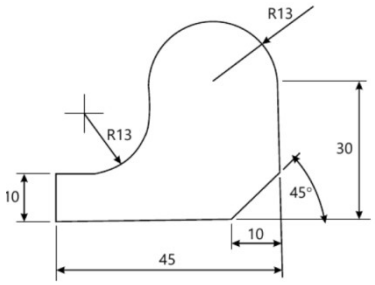
11.	a)	Explain how the sequential approach to the product development process differs from the concurrent engineering approach. Why should the latter be adopted?	*13,K2,CO1*
		OR	
	b)	Briefly explain a typical CAD process on a CAD/CAM system with a flow chart.	*13,K2,CO1*
12.	a)	Discuss about the major surface entities provided by CAD systems.	*13,K2,CO2*
		OR	
	b)	Briefly explain CSG and B–Rep of solid modeling techniques.	*13,K2,CO2*
13.	a)	Explain how the IGES standard facilitate the exchange of graphical data between different CAD systems, and what challenges or limitations may arise in the process.	*13,K2,CO3*
		OR	

b) Describe the role of the STEP (Standard for the Exchange of Product Model Data) standard in CAD data exchange and interoperability. *13,K2,CO3*

14. a) Describe the constructional details of CNC machine tools. *13,K2,CO4*

OR

b) For the component shown in figure below, prepare the part program using ISO codes and indicate tool path movement for sketch of the part. *13,K2,CO4*



15. a) Explain the concept of OPTIZ coding system with example. *13,K2,CO5*

OR

b) Explain different types of layout considerations of FMS and List the physical components of FMS. *13,K2,CO5*

PART - C (1 × 15 = 15 Marks)

16. a) The vertices of a triangle are situated at points (15, 30), (25, 35) and (5, 45). Find the coordinates of the vertices if the triangle is first rotated 100^{o} counterclockwise direction about the origin and then scaled to twice its size. *15,K3,CO6*

OR

b) Derive the equation for Bezier Curve. Find the equation of a Bezier curve which is defined by the four points as P0 (2, 2, 0), P1(2, 3, 0), P2(3, 3, 0) and find the points on the curve for u = 0, ¼, ½, ¾, 1. *15,K3,CO6*