Reg. No.

Question Paper Code

12069

2 1 JUL 2023

## B.E. / B.Tech - DEGREE EXAMINATIONS, APRIL / MAY 2023

Fourth Semester

## Mechanical Engineering

## 20MEPC403 - COMPUTER AIDED DESIGN AND MANUFACTURING

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

## PART - A $(10 \times 2 = 20 \text{ Marks})$

Answer ALL Questions

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1			Marks, K-Level, CO
1.	Pl	ot the various stages of Product Life Cycle.	2,K2,CO1
2.	W	hat is meant by Clipping?	2,K1,C01
3.	Di	raw the second order continuity curve.	2,K2,C02
4.	W ap	Thy B-rep modeling approaches are widely followed than CSG proach?	2,K2,CO2
5.		st some hidden space algorithms.	2,K1,CO3
6.	W	rite the advantages of Bottom - up assembly approach.	2,K1,CO3
7.	Sta	ate the needs for data exchange standards	2,K2,CO4
8.	W	hat is meant by CAD data exchange? Mention its importance.	2,K2,CO4
9.	W	hat do you mean by machining centre with respect to NC machines?	2,K2,CO5
10.	W	hat are the following G and M functions for a Machining center? G17, 60, M19 and M06.	2,K2,CO5
		PART - B (5 × 13 = 65 Marks) Answer ALL Questions	
parameter ( parameter )	a)	List and describe various activities involved in the product cycle development with suitable diagram.  OR	13,K2,COI
	b)	With an example, elaborate the steps involved in implementation of CAM in a manufacturing industry.	13,K2,CO1
12.	a)	Derive the equation for Hermite Cubic spline curve.  OR	13,K2,CO2
	b)	How does solid modeling differ from surface modeling? With neat sketch discuss briefly about B-rep type of solid modeling techniques.	13,K2,CO2
13.	a)	Describe about Hidden surface removal (HSR) algorithms.  OR	13,K2,CO3
KI - I	Reme	mber; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create	12069

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Explain briefly Assembly modeling of parts.

13.K2.CO3

14. Explain about Graphics Kernel System (GKS). a)

13,K2,CO4

- Describe briefly the architecture of the following data exchange b) formats.
  - (i) IGES (ii) STEP

7.K2,CO4

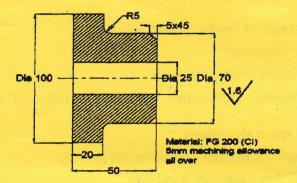
6,K2,CO4

Explain the working of a NC machine tool with the help of a diagram. 15. Also state advantage and limitations of NC machines.

13,K2,CO5

- OR
- Write a CNC program for machining the component shown in Figure. Assume that the work piece is having a Diameter of 108 mm x 60 mm.

13,K3,CO5



PART - C  $(1 \times 15 = 15 \text{ Marks})$ 

With a suitable example, analysis the benefits of the CAD/CAM 16. 15,K3,CO6 system after implementation of it over the convensional system which had been followed for long time in a cutting tool manufacturing company. Assume suitable data wherever required.

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 also find the points on the curve for  $u = 0, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1$ .

15,K3,CO6