Reg. No.															

Question Paper Code	12795

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Fourth Semester

Mechanical and Automation Engineering

20MUPC404 - COMPUTER AIDED DESIGN

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Compare sequential and concurrent engineering.	2	K2	CO1
2.	Define Clipping.	2	K1	CO1
3.	List the limitations of the Hermite curve.	2	K1	CO2
4.	Define Coons patch.	2	K1	CO2
5.	Why removal of the hidden line is important?	2	K2	CO4
6.	Classify the various methods of shading.	2	K2	CO4
7.	List the advantages of tolerance analysis.	2	K1	CO5
8.	Define interference checking.	2	K1	CO5
9.	What is an Open graphics library?	2	K1	CO6
10.	Define CALS.	2	K1	CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Classify the various stages of a typical product cycle and discuss the importance of each stage.	13	K2	CO1
		OR			
	b)	Explain the homogeneous coordinate transformation system and matrix.	13	K2	CO1
12.	a)	What do you understand by the Boundary representation (B rep) technique of solid modeling? Explain briefly the data structure of the B-rep solid model.	13	K2	CO3
		OR			
	b)	Classify the types of solid modeling and explain the constructive solid modeling (CSG) technique with suitable examples.	13	K2	CO3
13.	a)	Discuss any two hidden surface removal algorithms with suitable examples.	13	K2	CO4

OR

b) Illustrate the following color models. *13 K2 CO4*
(i) RGB color model.
(ii) CMY color model.

14. a) Explain assembly modelling in CAD and its types with suitable examples. *13 K2 CO5*

OR

b) Describe the mass properties calculations in the design with examples. *13 K2 CO5*

15. a) Outline the Graphics Kernel System (GKS) with a suitable example. *13 K2 CO6*

OR

b) Explain the IGES data exchange format with a neat sketch. *13 K2 CO6*

PART - C (1 × 15 = 15 Marks)

16. a) i) Explain different features of a Bezier curve with construction details. *8 K2 CO2*
ii) Derive the transformation matrix for a Hermite curve. *7 K2 CO2*

OR

b) What are B-spline curves? What are the properties and characteristics of B-spline curves? *15 K2 CO2*