Reg. No.																

Question Paper Code	14223

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Fourth Semester

Mechanical and Automation Engineering

20MUPC404 - COMPUTER AIDED DESIGN

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	A bitmap is collection of _____that describes an image. (a) bits (b) colours (c) algorithm (d) pixels	1	K1	CO1
2.	The transformation in which the dimension of an object are changed relative to a specified fixed point is called (a) Translation (b) Rotation (c) Scaling (d) Reflection	1	K1	CO1
3.	Gaussian process is a _____ interpolation process. (a) Linear (b) non-linear (c) not an interpolation process (d) None of the above	1	K1	CO2
4.	The number of control points in a Bezier curve ensures the (a) Jaggies of curve (b) smoothness of curve (c) straightness of curve (d) None of these	1	K1	CO2
5.	Which of the following are the most commonly used primitives to create a solid? (a) cone, sphere, wedge, torus (b) Block, cylinder, wedge, torus (c) Block, cylinder, cone, sphere (d) cylinder, cone, sphere, torus	1	K1	CO3
6.	What does the term generator denote in sweep representations of solid modelling? (a) shape (b) path (c) sweeping object (d) Rules	1	K1	CO3
7.	HSR method broadly of two types, objects space method and _____space method. (a) Unhidden (b) plane (c) hidden (d) image	1	K1	CO4
8.	The intersection of three primary RGB colour produces (a) white colour (b) Black colour (c) Magenta colour (d) Blue colour	1	K1	CO4
9.	Tolerance analysis helps in: (a) Improving visual appeal (b) Ensuring manufacturing accuracy (c) Measuring component weight (d) Reducing computational time	1	K1	CO5
10.	Which one of the following is not a graphics standard? (a) GKS (b) IGES (c) UNIX (d) PHIGS	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Define Clipping.	2	K1	CO1
12.	How do you screen coordinate system?	2	K1	CO1
13.	Difference between Geometry and topology.	2	K2	CO2
14.	Write the Quadratic Bezier curve.	2	K2	CO2
15.	What do you mean by Hybrid Modeling?	2	K1	CO3
16.	State the open polyhedral objects.	2	K1	CO3
17.	What are silhouette edges?	2	K1	CO4
18.	Difference between object space method and image space methods.	2	K2	CO4
19.	Mention the importance of geometric tolerance.	2	K1	CO5
20.	How mass property calculation is applied in CAD/CAM?	2	K1	CO5
21.	Explain the Graphics Kernel system.	2	K2	CO6
22.	How does PHIGS differ from IGES?	2	K1	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Explain the various steps involved in the design process.	*11*	*K2*	*CO1*
		OR			
	b)	Explain DDA line drawing Algorithm with an example.	*11*	*K2*	*CO1*
24.	a)	Derive the equation for Hermite Cubic Spline Curve.	*11*	*K2*	*CO2*
		OR			
	b)	Explain the properties and characteristics of B-spline curves in detail.	*11*	*K2*	*CO2*
25.	a)	Construct Boundary representation technique with example.	*11*	*K3*	*CO3*
		OR			
	b)	Construct the CSG technique with a suitable example.	*11*	*K3*	*CO3*
26.	a)	Explain Z buffer algorithm with its operations in detail.	*11*	*K2*	*CO4*
		OR			
	b)	Explain CMY Colour model in detail.	*11*	*K2*	*CO4*
27.	a)	Construct Top down approach of Assembly modeling with neat sketch.	*11*	*K3*	*CO5*
		OR			
	b)	Infer the various methods used for tolerance analysis and explain them.	*11*	*K3*	*CO5*
28.	a)	Explain in detail about Open GL.	*11*	*K2*	*CO6*
		OR			
	b)	Explain the IGES Standard in detail.	*11*	*K2*	*CO6*