

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Winter Examination – 2024

Course: B.Tech.

Branch : Mechanical Engineering

Semester : VII

Subject Code & Name: BTMEC702, CAD/CAM

/Mech. Engg. (Sandwich)

Max Marks: 60

Date:07/02/2025

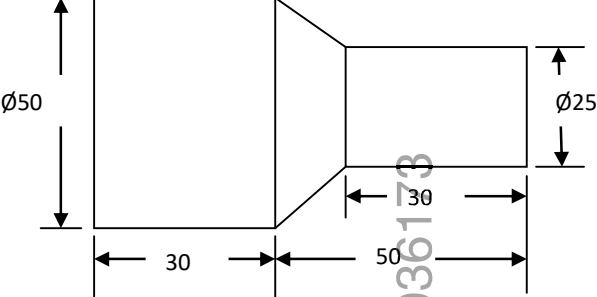
Duration: 3 Hr.

Instructions to the Students:

1. Each question carries 12 marks.
2. Question No. 1 will be compulsory and include objective-type questions.
3. Candidates are required to attempt any four questions from Question No. 2 to Question No. 6.
4. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
5. Use of non-programmable scientific calculators is allowed.
6. Assume suitable data wherever necessary and mention it clearly.

		(Level /CO)	Marks
Q. 1	Objective type questions. (Compulsory Question)		12
1	To view portion of a image enclosed in a rectangular region is called a. View port b. Windowing c. Raster scan d. Stroke writing	CO-01	1
2	To display different portions of the drawing in different region of the screen is called a. View port b. Windowing c. Raster scan d. Stroke writing	CO-01	1
3	In geometric modelling Solid model contains a. Geometrical data b. Topological information c. Geometrical data & Topological information d. Topographical information	CO-2	1
4	In geometric modeling wire frame and surface models contains a. Geometrical data b. Topological information c. Geometrical data & Topological information d. Topographical information	CO-2	1
5	Easiest and most advanced method of geometric modelling is a. Solid modelling b. Wire frame modelling c. Surface modeling d. None of these	CO-2	1
6	Primitives are combined by mathematical set of Boolean operations in a. Constructive Solid modeling b. Destructive Solid modeling c. Boundary representation d. Sweeping	CO-03	1
7	A surface model is generated by using wire frame entities - plane surface, ruled surface, tabulated surface & surface of revolution is known as a. Analytical entities b. Synthetic entities c. Destructive Solid Geometry d. Solid modelling	CO-03	1

8	Bezier surface allows				CO-03	1
	a. Local control	b. Global control	c. Both local and global control	d. None of these		
9	Elements of Numerical Control system are				CO-04	1
	a. Program of instructions	b. Machine control unit	c. Processing equipment	d. All the above		
10	In manual part program preparatory code for "rapid movement line path" is				CO-05	1
	a. G00	b. G01	c. G60	d. G71		
11	In manual part program code for auxiliary function "program end with rewind" is				CO-05	1
	a. M30	b. M01	c. M03	d. M02		
12	In APT programming the surface which guide the side of the cutter is known as				CO-06	1
	a. Drive surface	b. Part surface	c. Check surface	d. Fillet surface		
Q. 2 Solve the following.						12
A)	Explain minimum three cursor control devices used as CAD input device.				CO-01	6
B)	A triangle ABC with vertices A (20, 20), B (80, 20), and C (20, 80) is to be scaled by factor of 0.5 about a point X (40, 40). Determine composite transformation matrix and coordinates of vertices of scaled triangle.				CO-02	6
Q.3 Solve the following.						12
A)	Compare the CSG and B-Rep methods as a modeling technique for CAD.				CO-03	6
B)	What are the various windowing applications in CAD? Explain with the help of neat sketches and suitable examples.				CO-02	6
Q. 4 Solve Any Two of the following.						12

A)	<p>Write a manual part program for a plain and taper turning the forged bar of 110 mm diameter as per the drawing shown.</p> 	CO-05	6
B)	<p>Classify numerical control system based on:</p> <ol style="list-style-type: none"> 1. Type of control systems 2. Type of motion control 3. Number of axes <p>Briefly discuss advantages and disadvantages of any one NC system.</p>	CO-05	6
C)	<p>What are the advantages of "Point to point control" in CNC systems? Also mention in which particular applications it will be recommended?</p>	CO-05	6
Q.5	Solve Any Two of the following.		12
A)	<p>Explain the terms:</p> <ol style="list-style-type: none"> A. Field variables B. Shape function C. Stiffness matrix 	CO-06	6
B)	Explain various properties of stiffness matrix	CO-06	6
C)	Explain various advantages of Finite Element Methods	CO-06	6
Q. 6	Solve Any Two of the following.		12
A)	Discuss types of flexible manufacturing system layouts.	CO7	6
B)	What is computer integrated manufacturing (CIM)? List its benefits.	CO8	6
C)	Briefly explain Retrieval & Generative CAPP systems.	CO9	6
	*** End ***		