



Paper id: 251042

Printed Page: 1 of 2
Subject Code: BME602

Roll No:

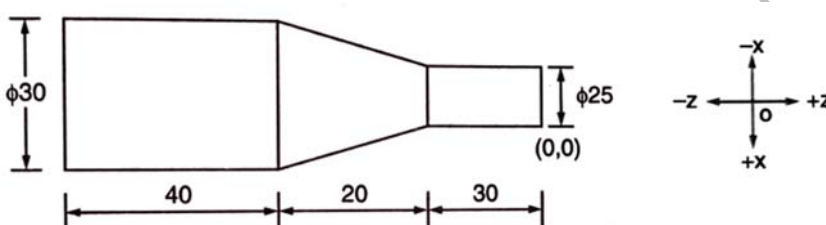
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

BTECH
(SEM VI) THEORY EXAMINATION 2024-25
CAD/CAM

TIME: 3 HRS**M.MARKS: 70****Note:** Attempt all Sections. In case of any missing data; choose suitably.**SECTION A****1. Attempt all questions in brief.****02 x 7 = 14**

| Q no. | Question | CO | Level |
|-------|--|----|-------|
| a. | What do you understand by CAD/CAM? | 1 | K2 |
| b. | What is clipping? | 1 | K1 |
| c. | What are the different types of geometric modeling. | 2 | K1 |
| d. | What are rational curves? How do they differ from non-rational curves? | 3 | K2 |
| e. | Differentiate between CNC and DNC machines. | 4 | K2 |
| f. | What is the function of various G codes and M codes? | 4 | K1 |
| g. | Explain the Classification and coding. | 5 | K2 |

SECTION B**2. Attempt any three of the following:****07 x 3 = 21**

| | | | |
|----|--|---|----|
| a. | Using Bresenham's line algorithm, find the pixel positions along the line path between the end points (20, 10) and (30, 18) with a slope of 0.8. Take $D_x = 10$ and $D_y = 8$. | 1 | K3 |
| b. | Explain constructive solid geometry. What is the role of primitives and Boolean operations in CSG? | 2 | K2 |
| c. | Discuss various types of quadric and superquadric surfaces available in the graphics package. What do you understand by the Blobby Objects? | 2 | K2 |
| d. | Write a program for taper turning a rod of diameter 30 mm as shown in figure.  | 4 | K3 |
| e. | What do you understand by Group Technology (GT), list the advantages of GT. Also explain the importance of Adaptive control in machining operations. | 5 | K2 |

SECTION C**3. Attempt any one part of the following:****07 x 1 = 07**

| | | | |
|----|---|---|----|
| a. | A triangle has vertices (0, 0), (5, 5), and (8, 8). The following transformations are done in sequence on this triangle: (i) First it is translated by 3 unit in y direction. (ii) Then triangle is rotated by 45° in anticlockwise direction. (iii) Then triangle is scaled by 3 units in x- direction. Find the final coordinates of triangle. | 1 | K3 |
| b. | Generate a Bezier curve passing through control points. (2, 0), (5, 4), (6, 3) and (4, 3). | 2 | K3 |



Paper id: 251042

Roll No:

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

BTECH
(SEM VI) THEORY EXAMINATION 2024-25
CAD/CAM

TIME: 3 HRS

M.MARKS: 70

4. Attempt any one part of the following:

07 x 1 = 07

| | | | |
|---|--|---|----|
| a. | For a work piece shown in the figure, end milling operation has to be performed. | 4 | K3 |
| | | | |
| <p>The diameter of end milling cutter is 25 mm. Feed rate is 50 mm per minute. Assume target point of tool to be located at $x = -20$ mm, $y = -20$ mm, $z = 10$ mm. Write part program for the above operation.</p> | | | |
| b. | Distinguished between interpolation and approximation method for generating control points of splines. Explain the B-Spline curves and its properties. | 2 | K2 |

5. Attempt any one part of the following:

07 x 1 = 07

| | | | |
|----|---|---|----|
| a. | Explain the Product Flow Analysis and Cellular Manufacturing with suitable example. | 5 | K2 |
| b. | What do you mean by Graphics Standards? Explain GKS, STEP and IGES standards. | 3 | K2 |

6. Attempt any one part of the following:

07 x 1 = 07

| | | | |
|----|---|---|----|
| a. | What do you mean by Boundary representation technique. Explain with example. | 2 | K2 |
| b. | What is APT? Write main features of APT. Discuss Macro statements used in APT with suitable examples. | 4 | K2 |

7. Attempt any one part of the following:

07 x 1 = 07

| | | | |
|----|---|---|----|
| a. | A square ABCD having coordinates A (0, 0), B (3, 0), C (3, 3), D (0, 3) is subjected to shearing. The shearing factors are 2 and 4 in x and y direction respectively. Find final coordinates. | 1 | K3 |
| b. | Describe the principle and the different types of flexible manufacturing system (FMS). List the advantages and disadvantages of FMS. | 5 | K2 |