Paper / Subject Code: 41224 / CAD/CAM

1/2

E sem IV | Branch - mechanical | Q.P NOV-2025 | Q.P code - 00129

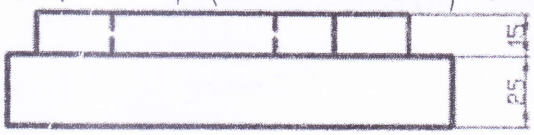
Date - 10.12.2025

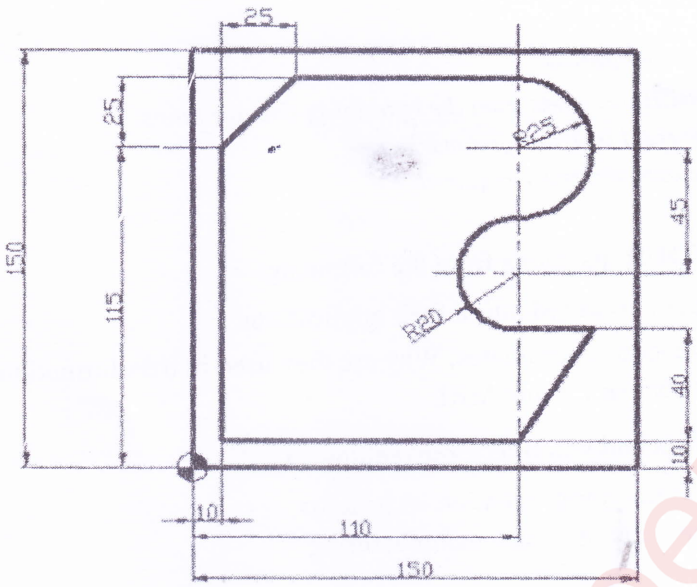
Time : 3 Hours **Total Marks : 80**

- ***Question No.1 is compulsory.***
- *Solve **ANY THREE** questions from the **remaining five questions.***
- *The figure to the right indicates full marks.*
- *Assume suitable data wherever required.*

			Marks
Q. 1		Solve **ANY FOUR** questions from the following.	**20**
	a)	What are Bezier curves? Mention their applications.	**5**
	b)	Define homogeneous coordinates. Why are they used in transformations?	**5**
	c)	Differentiate between CT and MRI.	**5**
	d.)	Define tool offset and workpiece zero setting.	**5**
	e)	Define Rapid Prototyping. Mention its benefits.	**5**
	f)	What are the benefits of virtual manufacturing.	
Q. 2	a)	Find the midpoint of the Bezier curve having end points $P_0(0,0)$ and $P_3(7,0)$ The other control points are $P_1(0,6)$ and $P_2(7,6)$.	**10**
	b)	A square with an edge length of 10 units is located on the origin with one of the edge at an angle of 30 degree with positive X-axis. Determine the new position of square, if it is rotated about Z-axis by an angle 30 degree in clockwise direction.	**10**
Q. 3	a)	Explain	
		i) Point Cloud data	**5**
		ii) Dicom	**5**
	b)	Explain wireframe, surface, and solid modeling approaches. Compare their advantages and limitations.	**10**
Q. 4	a)	Explain in brief the elements of CNC machine tool system. Write down advantages, limitations and applications of CNC machine tool system.	**10**
	b)	Explain the process of obtaining Cad solid model of body parts using CT output data.	**10**
Q. 5	a)	Discuss LOM (Laminated Object Manufacturing) with working, merits, and demerits.	**10**
	b)	Write a CNC part program for the following component :	**10**

SE sem-IV | Branch - Mechanical | Nov-2024 | Q. P code - 00129 | Date - 10.12.2024





Q. 6 a) Define Virtual Manufacturing and discuss its significance in the modern industrial landscape. What are the primary objectives and scope of Virtual Manufacturing? **10**

b) Describe the FDM process with a neat diagram and discuss applications. **10**

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