Code: 20A03501

R20

B.Tech III Year I Semester (R20) Supplementary Examinations August 2023

CAD / CAM

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

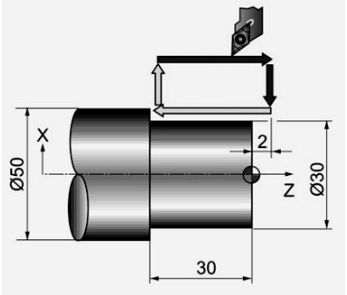
*****

1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	Specify any four benefits of CAM.	2M
	(b)	What is meant by geometric transformations?	2M
	(c)	Draw an example for a simple surface of revolution.	2M
	(d)	Draw the wireframe model of a cube suitable for STL format.	2M
	(e)	Draw the block diagram to represent the DNC system.	2M
	(f)	Highlight the major specifications of a CNC machine.	2M
	(g)	What is meant by the canned cycle?	2M
	(h)	Specify motion commands of APT programming.	2M
	(i)	Specify major elements in computer-integrated manufacturing.	2M
	(j)	Name the methods of programming robots.	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

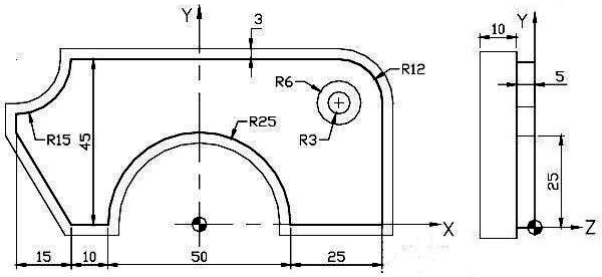
2	(a)	Describe various hardware and software devices used in CAD/CAM environments.	5M
	(b)	Discuss the structure of the IGES CAD format.	5M
		OR	
3	(a)	Derive the rotation matrix.	5M
	(b)	Describe the real-life application of the rotation matrix.	5M
4		Discuss various geometric modelling techniques of surfaces.	10M
		OR	
5		With examples, describe geometric modelling techniques of solids.	10M
6		With schematic diagrams, explain various elements of CNC machine tools.	10M
		OR	
7		Discuss different types of work-holding and tool-holding devices in CNC machine tools.	10M
8		Applying canned cycles, write a CNC part program to turn part as shown in figure.	10M



OR

Contd. in page 2

9 Write a CNC part program to the machine along the profile as shown in figure. 10M



10 Discuss the concept of Group Technology and explain its application in detail. 10M

OR

11 Explain various technologies involved in Artificial Intelligence (AI) and its applications in the manufacturing field. 10M

*****

Code: 20A03501 **R20**

B.Tech III Year I Semester (R20) Regular & Supplementary Examinations January 2024

CAD/CAM

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1		Answer the following: (10 X 02 = 20 Marks)	
	(a)	List the benefits of CAD/CAM.	2M
	(b)	Define scaling and Rotation in Transformations.	2M
	(c)	Define Surface modelling.	2M
	(d)	Discuss B-rep technique.	2M
	(e)	What are the elements of NC System?	2M
	(f)	Explain the designation of Axes in NC Machines.	2M
	(g)	List out any four G & M codes stands in NC programming.	2M
	(h)	Define APT.	2M
	(i)	List out the components in CIM.	2M
	(j)	State the advantages and applications of GT.	2M

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2		What are neutral file formats for graphics standards? Explain with suitable example.	10M
		OR	
3	(a)	Differentiate between 2D & 3D Geometric Transformations.	5M
	(b)	Explain the Homogeneous Transformations in CAD.	5M
4		Explain the concept of Blending of surfaces in Geometric Modelling with examples.	10M
		OR	
5	(a)	Explain the CSG solid modelling technique.	5M
	(b)	Discuss the representation of Bezier curve.	5M
6	(a)	What is Actuation system? Explain the different types of Actuation systems.	5M
	(b)	Explain the cutting tools in CNC Machine.	5M
		OR	
7	(a)	Discuss the function of adaptive control system in NC machines.	5M
	(b)	Differentiate between CNC and DNC systems.	5M
8		Explain Optiz classification and coding system.	10M
		OR	
9	(a)	Explain any five motion statements used in APT Part Programming.	5M
	(b)	What are the four types of statements in APT language?	5M
10	(a)	Briefly explain the Anatomy & Configuration of Robot.	5M
	(b)	Differentiate between the Virtual Reality and Augmented Reality.	5M
		OR	
11		What is Artificial Intelligence? How does AI work in Automation?	10M

*****