Code No: **R1641032** **R16** **Set No. 1**

IV B.Tech I Semester Regular Examinations, October/November - 2019

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1 a) List out output devices of CAD. [2]
b) What are basic geometric commands in drafting system? [2]
c) What do you understand the M and G functions? [3]
d) Define the FMS. [2]
e) Give a brief note on computer aided quality control. [2]
f) What is AGV? [3]

PART–B *(4x14 = 56 Marks)*

2 a) Briefly discuss the need of computers in industrial manufacturing, mentioning their applications. [7]
b) As shown Figure 2(b) shows a square with an edge length of 10 units is located on the orgin with one of the edge at an of 30^0 with the +axis. Calculate the new position of the square if it is rotated about Z axis by an angle 30^0 in the clockwise direction.

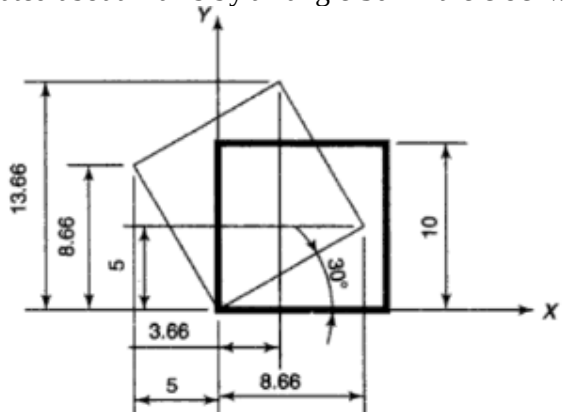

Figure 2(b) [7]

3 a) Define Bezier surface? Explain various characteristics of this surface. [7]
b) In detail explain the salient features of solid modeling. [7]

4 a) Differentiate Manual part programming and Computer assisted part programming. [7]
b) Explain the concept of adaptive control of NC machines. [7]

5 a) What is group technology? When is it suitable in manufacturing? What are its benefits? [7]
b) What is CAPP? Explain the any one type of Capp with neat sketches. [7]

6 a) Briefly explain some of the methods used in computer aided quality control. [7]
b) Explain the integration of CAQC with CAD/CAM [7]

7 a) Discuss the principle of material handling. Name and describe the five types of material handling devices? [7]
b) Explain the different types of manufacturing systems. [7]

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Code No: **R1641032** **R16** **Set No. 2**

IV B.Tech I Semester Regular Examinations, October/November - 2019

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1.	a)	List out hard copy devices in CAD system	[2]
	b)	What are the functions of Geometric Modelling in design?	[3]
	c)	Define APT.	[2]
	d)	What are the inputs and outputs of FMS?	[2]
	e)	Define computer aided testing.	[2]
	f)	State any two benefits of CIM system.	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	Draw and explain the CAD/CAM product cycle.	[7]
	b)	Explain cohen-sutherland clipping algorithm.	[7]
3.	a)	Find the equation of a line is that tangent to a circle whose equation is $X^2+Y^2=49$ and passing through the point (15, 6).	[7]
	b)	Enlist and explain with different Boolean operations in solid modeling.	[7]
4.	a)	Explain various steps involved in CNC part programming.	[7]
	b)	Explain the concept of adaptive control of NC machines.	[7]
5.	a)	What is group technology? When is it appropriate to go for group technology? What are its advantages?	[7]
	b)	Draw the FMS layout and explain the function of each component of FMS.	[7]
6.	a)	How is traditional quality control different from computer aided quality control? Discuss.	[7]
	b)	Explain the any one type of Non-contact inspection technique used in computer-aided quality control system.	[7]
7.	a)	Discuss the role of human labor in manufacturing systems.	[7]
	b)	Write the advantage of material handling system.	[7]

Code No: **R1641032** **R16** **Set No. 3**

IV B.Tech I Semester Regular Examinations, October/November - 2019

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B

*****

PART–A *(14 Marks)*

1. a) What is the structure of a computing system? [2]
   b) What are the Boolean operations used in solid modelling? [2]
   c) What are the elements of NC system? [2]
   d) What is the need of Group Technology? [3]
   e) Define Quality control. [2]
   f) Write about types of manufacturing systems? [3]

PART–B *(4x14 = 56 Marks)*

2. a) Briefly explain the term scaling, translation and rotation used in Graphics. [7]
   b) What are the input devices more commonly employed for general graphics applications? Present their merits and demerits. [7]

3. a) What are the requirements of geometric modeling? [7]
   b) What is meant by sweep? Discuss in detail the various types of sweep techniques available for 3D geometric construction. [7]

4. a) Explain the difference between CNC and DNC along with neat sketches. [7]
   b) Write NC part program for the part shown in the below shown in figure 4(b). All the dimensions are in mm only.

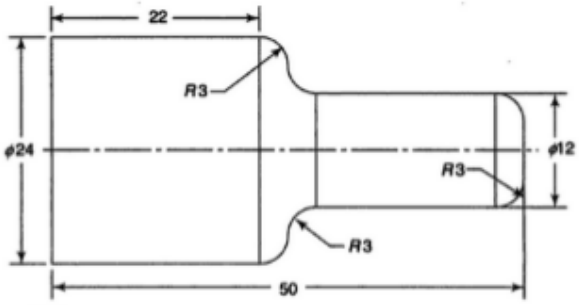

Figure 4(b) [7]

5. a) What is a production Flow Analysis? Discuss various steps involved in PFA. [7]
   b) How do you overcome the difficulties in traditional process planning by adopting CAPP method? [7]

6. a) Define computer aided quality control. Explain how it is implemented. [7]
   b) Explain any one contact inspection technique with neat sketch. [7]

7. a) Explain the features of MRP-I with a neat block diagram. State its applications. [7]
   b) Discuss the role of human labor in manufacturing systems. [7]

Code No: **R1641032** **R16** **Set No. 4**

IV B.Tech I Semester Regular Examinations, October/November - 2019

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1. a) Name some coordinate systems in computer graphics. [2]
   b) Differentiate the terms wire frame, surface and solid models. [3]
   c) What are M03, M30 codes stands for in NC Programming? [2]
   d) What are the various approaches available for CAPP? [2]
   e) State the objectives of quality control. [3]
   f) What is meant by CIM? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the various types of display devices. [7]
   b) Briefly explain the hidden line removal algorithm. [7]

3. a) Explain the Constructive Solid Geometry (CSG) method to create models [7]
   b) Write the properties of Bezier and B-Spline curves. [7]

4. a) What are the types of statements used in APT programming? Explain in detail. [8]
   b) Write a part program for the profile given by using G-codes and M-codes assuming suitable data (all dimensions are in mm) as shown in figure 4(b)

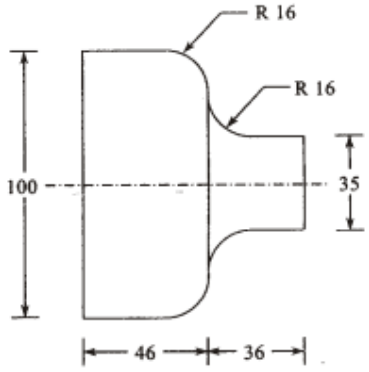

Figure 4(b) [6]

5. a) Briefly discuss about tool management system [6]
   b) Discuss the following types of layouts in the design of FMS:
   (i) Circular layer (ii) Linear layers (iii) Loop layers [8]

6. a) List out different types of CMM? State its applications. [8]
   b) Discuss the terminology used in quality control. [6]

7. a) Describe different types of material handling systems used in CIM briefly. [7]
   b) State the advantages of CIM in manufacturing industry in detail. [7]