M.E. First Semester (Mechanical Engineering) (CAD / CAM) (F.T.) (CBS)

13482 : Computer Aided Design : 1 MCC 1

P. Pages : 2 **AU - 3288**

Time : Three Hours * 0 2 8 7 * Max. Marks : 80

Notes :
1. All question carry marks as indicated.
2. Answer **any three** question from Section A and **any three** question from Section B.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answer necessary with the help of neat sketches.
6. Non-programable electronic calculator permitted.
7. Use of pen Blue/Black ink/refill only for writing book.

SECTION – A

1. a) Explain the steps involved in general design process and CAD. **7**

b) Discuss the developments in Computer Technology in view of CAD. **6**

2. a) Discuss the application areas of CAD in design and manufacturing. **6**

b) What do you mean by mapping of geometric models? Explain in brief the three possible cases of mapping. **7**

3. a) Derive Transformation Matrix for Rotation about an arbitrary point. **7**

b) Explain briefly the types of Co-ordinate systems used in CAD. **6**

4. a) What is Geometric modeling? Explain with suitable sketches. **7**

b) Describe the classification of computers according to their generations. What is meant by interactive software? Explain. **7**

5. A triangle with vertices (3, 3), (11, 3) and (3, 9).
Transform the triangle using **2D** as follows. **1**

i) Enlarge the triangle by 30%.

ii) Translate the triangle in succession with above-4 units in X and -2 units in Y. **2**

iii) Find reflation @ **Y-axis** in succession with above (i) **2**

iv) Translate the original triangle with 4 units in X and 2 units in Y direction using **Homogenous transformation**. **2**

v) Rotate the original triangle with 90° degree @ (3, 3). **4**

vi) Transform the triangle in succession with **(v)** to reduce the original base by 2 units. **2**

SECTION – B

6.	a)	Explain CSG for representation of solids.	**6**
	b)	What is Automated Drafting? Explain.	**7**
7.	a)	Discuss the display commands generally available in any commercial graphics package.	**6**
	b)	Explain the difference between wireframe and solid modelling.	**7**
8.	a)	Explain GKS? What for it needed?	**6**
	b)	Compare Bezier Cubic and Hermit Cubic Curve.	**7**
9.	a)	Explain IGES? What for it needed?	**6**
	b)	What is the use of virtual reality? Also discuss the concept of virtual reality.	**7**
10.	a)	What is 'CATIA'? What are important features of 'CATIA'?	**5**
	b)	From the given 3D object given in Figure 1 (Q 10 B) Explain the steps involved to model in commercially available Graphic Packages. Use constructive solid geometry, Boolean operations and draw preference binary tree.	**9**

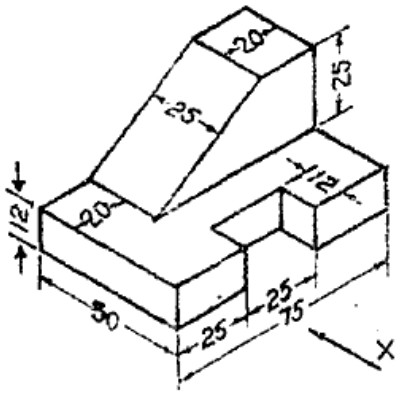

Figure 1 (Q10 B)

****