Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VI• EXAMINATION–SUMMER 2015

Subject Code:161903 **Date:08/05/2015**

Subject Name: Computer Aided Design

Time:10:30 am to 01:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Write a Breshnham's algorithm for line having slop more then 45°	**07**
	(b)	What is parametric representation? Give a parametric representation of line having points (5, 4) and (10,10) end points	**07**
Q.2	**(a)**	For a circle having radius 8, plot the pixels by Breshnham's algorithm in first quadrant from x = 0 to x = r $\sqrt{2}$	**07**
	(b)	The coordinates of four control points relative to a current WCS are given by Po = $[3\ 3\ 0]^T$, $P_1 = [3\ 4\ 0]^T$, $P_2 = [4\ 4\ 0]^T$, and $P_3 = [4\ 3\ 0]^T$, find the equations of resulting Bezier curve. Also find point on the curve for u = 0, ¼, ½, ¾, and 1.	**07**
		OR	
	(b)	For ΔABC with coordinates A(5,5), B(8,5) and C(5,10), find new vertex position if it reflected about a line y = 3x + 4.	**07**
Q.3	**(a)**	Discuss: (i) Boundary representation (ii) Constructive solid Geometry representation	**07**
	(b)	Discuss different analysis carried out by CAD analysis software	**07**
		OR	
Q.3	**(a)**	Explain (i) Be'zier surface (ii) B-spline surfaces.	**07**
	(b)	Explain spatial partitioning representation with suitable example.	**07**
Q.4	**(a)**	What is design optimization? Explain its application and advantages in engineering design	**07**
	(b)	What is bound point and a free point in the design space? Distinguish it.	**07**
		OR	
Q.4	**(a)**	What is Data Structure, Explain how it is useful to CAD	**07**
	(b)	Distinguish between engineering design and optimum design	**07**
Q.5	**(a)**	What are the different types of meshes for FEM? Explain in brief	**07**
	(b)	Explain conversion of graphic information to part program	**07**
		OR	
Q.5	**(a)**	What is FEA? Explain steps involved in FEA.	**07**
	(b)	What is LISP? Explain with suitable example.	**07**

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