[3 Hours]   **[Total Marks: 80]**

Please check whether you have got the right question paper.

N.B: **(1) Question No.1 is compulsory**
          (2) Attempt any three of remaining five questions
          (3) Assume any suitable data if necessary and justify the same

Q 1	**a)**	**What is aliasing and antialiasing?**	**5**
	b)	**Write the flood fill approach for 8 connected method.**	**5**
	c)	**Explain the concept of halftoning with example.**	**5**
	d)	**Prove that two successive rotations are additive**	**5**
Q 2	**a)**	**Plot the points for midpoint ellipse with rx=3 and ry=5 for region 1.**	**10**
	b)	**Explain the steps for 2D rotation about arbitrary point.**	**10**
Q 3	**a)**	**Explain Liang Barsky line clipping algorithm. Apply the algorithm to the line with coordinates (30,60) and (60,25) against the window(xmin,ymin)=(10,10) and (xmax,ymax)=(50,50).**	**10**
	b)	**Explain Weiler Artherton polygon clipping algorithm with suitable example.**	**10**
Q 4	**a)**	**What is window and viewport? Derive the matrix for viewport transformation.**	**10**
	b)	**Explain what is meant by Bezier curve? State the various properties of Bezier curve.**	**10**
Q 5	**a)**	**What is meant by parallel and perspective projection? Derive matrix for perspective projection.**	**10**
	b)	**Explain Z Buffer algorithm for hidden surface removal.**	**10**
Q 6		**Write short notes on(any two)**	
	a)	**Koch curve**	
	b)	**Sweep representation**	**20**
	c)	**Gouraud and phong shading**	
	d)	**Inside Outside test**	

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