(3 Hours) **Marks : 80**

Note: 1) Question 1 is compulsory.

2) Attempt any three questions from the remaining questions.

3) Assume suitable data wherever applicable.

Q1	a	Explain aliasing and anti-aliasing.	5
	b	Explain applications of virtual reality.	5
	c	Explain Fractals.	5
	d	Explain Raster and random scan display.	5
Q2	a	What is virtual reality? Explain components of virtual reality.	10
	b	Find reflection of point A(5,9) about line y=x+5.	10
Q3	a	Derive transformation matrix for rotation about fixed point and explain with suitable example.	10
	b	Explain Sutherland - Hodgeman polygon clipping algorithm.	10
Q4	a	List out properties of bezier curve. Generate three points on cubic bezier curve with control points A(1,1), B(2,3), C(4,3), D(6,4).	10
	b	Explain VR modeling.	10
Q5	a	Explain graphical rendering pipeline.	10
	b	Define window and viewport, explain viewing transformation.	10
Q6		Write short note (Any Four)	
	a	Text clipping	5
	b	Morphing	5
	c	Parallel and perspective projection	5
	d	VRML	5
	e	Relevance of homogeneous coordinate system	5