B.Tech. Degree V Semester Examination December 2002

ME 503 COMPUTER GRAPHICS
(1999 Admissions onwards)

Time: 3 Hours   Maximum Marks: 100

I.	(a)	Explain with diagram the working of a DVST.	(10)
	(b)	Explain the working of a plasma panel display.	(5)
	(c)	What is a Calligraphic refresh graphics display?	(5)

OR

II.	(a)	Explain the working principle of a CRT with neat diagram.	(10)
	(b)	Explain the pointing and position devices with examples.	(10)

III.	(a)	A point P(4, 3) is translated to the Origin and then rotated $90°$ counterclockwise about the origin. Find the transformation matrix.	(8)
	(b)	Derive the transformation for reflection about any arbitrary line $y = mx + c$.	(12)

OR

IV.	(a)	Show that the transformation matrix for reflection about $y = x$ is equivalent to reflection relative to x-axis followed by a counterclockwise rotation of $90°$.	(10)
	(b)	Find the transformation matrix for rotating an object about an arbitrary point (ℓ, m).	(10)

V.	(a)	Derive the transformation matrix for rotation about any arbitrary axis in space.	(12)
	(b)	Derive the transformation matrix for a diametric projection.	(8)

OR

VI.	(a)	What is stereographic projection? Derive the transformation matrices.	(10)
	(b)	Derive the single point perspective projection transformation matrix.	(10)

VII.	(a)	Compare the parametric and non parametric representation for an ellipse.	(10)
	(b)	What is a Bezier curve? Explain its characteristics.	(10)

OR

VIII.	(a)	Given control points $B_0[1,1]$, $B_1[2,3]$, $B_2[4,3]$ and $B_3[3,1]$ of a Bezier curve. Determine 8 points on the Bezier curve and fit the curve.	(12)
	(b)	Explain the blending function of a B-spline curve.	(8)

IX.	(a)	Explain surfaces of revolution with suitable examples.	(8)
	(b)	Write short notes on:	
		(i) Sweep surfaces	
		(ii) Bilinear surfaces	
		(iii) B-spline surfaces.	(12)

OR

X.	(a)	What are the characteristics of Bezier surfaces?	(8)
	(b)	Explain the steps for obtaining surface of revolution about any arbitrary axis.	(12)

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