## GUJARAT TECHNOLOGICAL UNIVERSITY BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2151603Date:08/12/		2015 s: 70	
Subject Name: Computer Graphics Time:10:30am to 1:00pm Total Marks Instructions:			
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a) (b)	Explain beam-penetration and shadow mask technique. Draw the architecture and explain working of raster scan display system.	07 07
Q.2	(a) (b)	Write a program in 'C' for Boundary fill algorithm (8 connected region). Explain the steps in midpoint circle drawing algorithm with suitable diagram. <b>OR</b>	07 07
	<b>(b</b> )	Explain scan line polygon filling algorithm with example.	07
Q.3	(a) (b)	Derive transformation matrix for 2D rotation. Perform X-shear & Y-shear on a triangle having A(2,1), B(4,3),C (2,3).Consider the constant value $b = c = 2$ .	07 07
Q.3	(a) (b)	<b>OR</b> What is shear transformation? Explain X-shear and Y-shear with example. A polygon has 4 vertices located at A(20,10) B(60,10) C(60,30) D(20,30).Calculate the vertices after applying a transformation matrix to double the size of polygon with point A located on the same place.	07 07
Q.4	(a) (b)	How Nicholl-Lee-Nicholl line clipping algorithm reduce the computation of unnecessary intersection point. What is scaling transformation? Prove that two scaling transformation commute that is $S_1S_2 = S_2S_1$ .	07 07
Q.4	(a) (b)	What is Bezier curve? List all it important properties. Generate all raster points on the line segment, if the two end points are given as (10,20) and (18,30) by using Bresenham's algorithm.	07 07
Q.5	(a)	Discuss two approaches used to determine hidden surfaces. Explain any one among it.	07
	<b>(b)</b>	Explain how RGB to CMY conversion is done and its usage. OR	07
Q.5	(a) (b)	Explain YIQ color model? Explain about its advantage and disadvantage. Difference between parallel and perspective projection.	07 07
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