Nepal College of Information Technology

Balkumari, Lalitpur

Subject: Computer Graphics Year: 2020

Group: SE Morning/Day Full Marks: 100

All students are required to give answers in their words

1. a) b)	Justify the statement "In the field of Computer Graphics, we learn about a machine's perception of visual information ". How can increasing the number of bits used to represent a single pixel on the screen manipulate the intensities coming out of the pixles?	7+8
2. a) b)	Why is it require to seek for matrix composition in case of 2D object transformation and rendering? A triangle with vertices A(15,12),B(14,11),C(16,11) is required to be reflected about line y = -4x + 5 Find out the final coordinate positions of the triangle after performing the desired transformation.	5+10
3. a) b)	What is the role of decision parameter in case of line and circle drawing algorithms? Clip a line segment with end points A(-3,7) and B(7,-10) against the view port bounded by coordinates (-5,-8) and (5,10) using Cohen-Sutherland algorithm.	7+8
4. a) b)	If average normal vectors not computed in case of Gouraud shading, will the shading done still be accurate? Justify. Why is it required to detect visible surface in 3D viewing? Explain any one of the Image Space Methods used for detecting visible surfaces.	7+8
5. a) b)	What is the difference between Interpolation and Approximation techniques used for forming Splines? Explain the role of Blending function, Convex Hull and Control points used in Bezier curve. Differentiate between Boundary fill and Flood Fill algorithm.	8+7
6. a) b)	List the composition matrix for reflecting an object about an arbitrary line in 3D. What is the use of a vanishing point in producing Perspective Projection? Explain the necessary equations used for producing perspective projection.	7+8
7. a) b)	Do you think Open GL plays an important role in graphical rendering? Explain with your own justifications. Is it really necessary for a graphical file to have a format? How can graphical files be represented?	5+5