

Program: Computer Engineering
Curriculum Scheme: 2016
Examination: SE Semester IV
Course Code: CSC404 and Course Name: Computer Graphics

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The number of pixels stored in the frame buffer of a graphics system is known as
Option A:	Resolution
Option B:	Depth
Option C:	Width
Option D:	Persistence
2.	What does Aspect ratio means?
Option A:	Number of pixels
Option B:	Ratio of vertical points to horizontal points
Option C:	Ratio of horizontal points to vertical points
Option D:	Ratio of Diagonal points to vertical points
3.	Consider the line from (1,1) to (5,5). Use the simple DDA algorithm to rasterize this line. Which are the correct sequence of plotted pixels
Option A:	(2,2) (3,3) (4,5)
Option B:	(2,1) (3,3) (4,5)
Option C:	(2,2) (3,2) (4,5)
Option D:	(2,1) (3,3) (4,4)
4.	In midpoint method of circle generation, if decision function (Pk) value is negative then decision function for the next iteration is given as _____ otherwise Pk gets updated as _____
Option A:	$P_k + 2 X_{k+1} + 1$ and $P_k + 2 X_{k+1} + 1 - 2Y_{k+1}$
Option B:	$P_k + 2 X_{k+1} - 1$ and $P_k - 2 X_{k+1} + 1 - 2Y_{k+1}$
Option C:	$P_k + 2 X_{k+1} + 1$ and $P_k + 2 X_{k+1} + 1 + 2Y_{k+1}$
Option D:	$P_k - 2 X_{k+1} + 1$ and $P_k + 2 X_{k+1} + 1 - 2Y_{k+1}$
5.	What is the initial value for the decision parameter in the midpoint circle algorithm?
Option A:	$5/4 - r$
Option B:	$4/5 - r$
Option C:	$r - 5/4$
Option D:	$r - 4/5$
6.	After rotating a triangle having A(0,0), B(6,0), C(3,3) by 90° about origin in anticlockwise direction, then resulting triangle will be _____.
Option A:	A(0,0),B(-3,-3),C(0,6)
Option B:	A(0,0),B(-3,3),C(0,6)

Option C:	A(0,0),B(3,-3),C(0,6)
Option D:	A(0,0),B(0,6),C(-3,3)
7.	Which of the following algorithms is used when we want to fill the area bounded by different color boundaries?
Option A:	Boundary-fill Algorithm
Option B:	Scan-line Algorithm
Option C:	Flood-fill Algorithm
Option D:	Seed-fill Algorithm
8.	Positive values for the rotation angle Θ defines
Option A:	Counterclockwise rotations about the end points
Option B:	Counterclockwise translation about the reference point
Option C:	Counterclockwise rotation about the reference point
Option D:	Negative direction
9.	Two consecutive scaling transformations are always commutative and _____.
Option A:	Additive
Option B:	Subtractive
Option C:	Multiplicative
Option D:	Division
10.	The region code of a point is 1001. The point is in the _____ region of the window.
Option A:	Top Right
Option B:	Top Left
Option C:	Bottom Left
Option D:	Bottom Right
11.	Liang Barsky algorithm uses the _____ equations for a line and solves four inequalities.
Option A:	Linear
Option B:	Quadratic
Option C:	Cubic
Option D:	Parametric
12.	A Bezier curve is a polynomial of degree _____ the no of control points used.
Option A:	One more than
Option B:	One less than
Option C:	Two less than
Option D:	Two more than
13.	The orthographic parallel projection, projection lines are _____ to each other.
Option A:	Inclined
Option B:	Perpendicular
Option C:	Diagonal
Option D:	Parallel
14.	The surface that is blocked or hidden from view in a 3D scene are known as
Option A:	Hidden surface

Option B:	Frame buffer
Option C:	Front surface
Option D:	Quad tree
15.	The _____ method is based on the principle of comparing objects and parts of objects to each other to find which are visible and which are hidden and In _____ algorithm visibility is decided point by point at each pixel position on the projection plane.
Option A:	Image space, Object-space
Option B:	Object-space , Image space
Option C:	Surface-space, Object-space
Option D:	Object-space , Surface-space
16.	Which visible surface detection algorithm is based on perspective depth
Option A:	Depth comparison
Option B:	Subdivision method
Option C:	Depth-buffer algorithm
Option D:	Back-face removal
17.	The main property of _____ is that their shape is irregular
Option A:	Fractals
Option B:	Curves
Option C:	Rendering
Option D:	Quad-tree
18.	_____ algorithm is used to clip the polygon
Option A:	Liang Barsky
Option B:	Cohen Sutherland
Option C:	Sutherland Hodgeman
Option D:	Midpoint subdivision
19.	If a point (x,y) is reflected about an axis which is normal to the XY plane and passing through the origin, the reflected point (X,Y) is _____
Option A:	(x,-y)
Option B:	(-x,y)
Option C:	(-x,-y)
Option D:	(y,x)
20.	The _____ algorithm divides a 2D space into 9 regions, of which only the middle part (viewport) is visible.
Option A:	Cohen Sutherland
Option B:	Liang Barsky
Option C:	Cyrus Beck
Option D:	Sutherland Hodgeman

Q2. (20 Marks)	Solve any Four Questions out of Six	05 marks each
A	<i>Explain any two different antialiasing techniques in detail.</i>	
B	<i>Compare Raster scan and Random scan display.</i>	
C	<i>Identify the pixel position along the line between (10,10) and (18,16) using Bresenham line drawing algorithm.</i>	
D	<i>Apply Liang Barsky line clipping algorithm clip the line with coordinates (5,10) and (35,30) against the window $(X_{wmin}, Y_{wmin})=(10,10)$ and $(X_{max}, Y_{max})=(20,20)$</i>	
E	<i>What is the purpose of the inside out test? Explain any one method.</i>	
F	<i>Explain Phong shading algorithm.</i>	
Q3. (20 Marks)	Solve any Two Questions out of Three	10 marks each
A	<i>Explain, what is meant by the Bezier curve? State various properties of the Bezier curve.</i>	
B	<i>Explain steps for 2D rotation about arbitrary point and provide a composite transformation matrix for the same.</i>	
C	<i>Write a short note on</i> <ul style="list-style-type: none"> a) Sweep Representation b) Halftoning 	