University of Mumbai
Examination 2020

Program: Computer Engineering

Course Code: CSC 406 and Course Name: Computer Graphics

Time: 2 hours Max. Marks: 80

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For the students: - All the Questions are compulsory

Q.1	
Q1.	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:	Resolution
Q2.	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
Q3.	Raster scan display means that the screen is scanned
Option A:	Top to bottom and right to left
Option B:	Left to right and top to bottom
Option C:	Bottom to top and left to right
Option D:	Bottom to top and right to left
Q4.	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
Q5.	Expansion of line DDA algorithm is
Option A:	Digital differential analyser
Option B:	Digital difference analyser
Option C:	Direct differential analyser
Option D:	Data differential analyser
Q6.	If a line whose end point is (10, 12) and start point is (20, 20), then xincr =? and yincr= ? as per DDA algorithm
Option A:	xincr=m yincr=1
Option B:	xincr=-m yincr=1
Option C:	xincr=-1 yincr=-m
Option D:	xincr=-1/m yincr=-1

Q7.	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
Q8.	The scale factor of viewport transformation for x co-ordinate is _____
Option A:	Sx = (svmax – svmin)/ (swmax – swmin)
Option B:	Sx = (svmax – svmin)/ (swmax + swmin)
Option C:	Sx = (svmin – svmax)/ (swmax – swmin)
Option D:	Sx = (svmax + svmin)/ (swmax – swmin)
Q9.	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
Q10.	A bitmap is ..... bit(s) per pixels.
Option A:	0
Option B:	1
Option C:	2
Option D:	3
Q11.	With 3 bits per pixel, we can accommodate 8 gray levels. If we use 8 bits per pixel then what is the value of gray levels?
Option A:	18 gray levels
Option B:	128 gray levels
Option C:	256 gray levels
Option D:	No color
Q12.	The method which is based on the principle of comparing objects and parts of objects to each other to find which are visible and which are hidden are called
Option A:	Object-space method
Option B:	Image-space method
Option C:	Both a & b
Option D:	None of these
Q13.	What is the primary use of clipping in computer graphics?
Option A:	adding graphics
Option B:	removing objects and lines
Option C:	Zooming
Option D:	Copying

Q14.	The selection and separation of a part of text or image for further operation are called
Option A:	Reflection
Option B:	Shear
Option C:	Clipping
Option D:	Viewing
Q15.	_____ is the rigid body transformation that moves object without deformation.
Option A:	Translation
Option B:	Scaling
Option C:	Rotation
Option D:	Shearing
Q16.	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
Q17.	Which surface algorithm is based on perspective depth
Option A:	Depth comparison
Option B:	Depth-buffer algorithm
Option C:	Subdivision method
Option D:	Back-face removal
Q18.	The viewing transformation is formed by
Option A:	Translation
Option B:	Translation, Scaling
Option C:	Translation, Scaling, Reflection
Option D:	Translation, Scaling, Rotation
Q19.	Which type of animation uses still frames with a graphic that slightly changes position?
Option A:	Frame-based animation
Option B:	Vector Animation
Option C:	Preproduction
Option D:	Scalar Animation
Q20.	Color information can be stored in
Option A:	Main memory
Option B:	Secondary memory
Option C:	Graphics card
Option D:	Frame buffer

Q2.	**Solve any four out of five**
a.	What are aliasing and antialiasing? Explain any one antialiasing technique.
b.	Consider a square with left-bottom corner at A(2, 2) and right-top corner at D (6,6) apply the transformation which makes its size half while keeping (2,2) fixed.
c.	Define window, viewport. Derive window-to-viewport transformation.
d.	Explain Back-Surface Detection method in detail with an example.
e.	What are the disadvantages of DDA algorithm?

Q3.	**Solve any four out of five**
a.	Scan convert the Line from (2,3) to (6,15) using DDA Algorithm. Show all the steps required.
b.	Write Midpoint circle drawing algorithm for 8 way symmetry.
c.	Perform rotation of a unit cube about yz plane by angle 30 degrees.
d.	Explain z buffer algorithm.
e.	Discuss about animation techniques.