University of Mumbai

Examination 2020 under cluster(Lead College: Pillai)

Examinations Commencing from 23rd December 2020 to 6th January 2021 and from 7th January 2021 to 20th January 2021

Program: Computer Engineering

Curriculum Scheme: Rev2019

Examination: SE Semester-III

Course Code: CSC305 and Course Name: Computer Graphics

Time: 2 hour Max. Marks: 80

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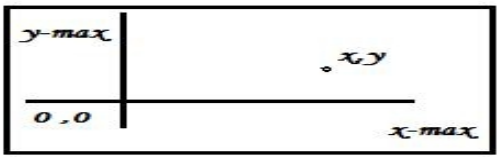
Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	**In graphical system, the array of pixels in the picture are stored in**
Option A:	**Memory**
Option B:	Frame buffer
Option C:	Processor
Option D:	All of the mentioned
2.	**The process of digitizing a given picture definition into a set of pixel-intensity for storage in the frame buffer is called**
Option A:	Rasterization
Option B:	Encoding
Option C:	**Scan conversion**
Option D:	True color system
3.	**Which display devices allows us to walk around an object and view it from different sides.**
Option A:	Direct view storage tubes
Option B:	**Three-dimensional devices**
Option C:	Flat panel display devices
Option D:	Plasma panel display devices
4.	**The primary output device in a graphics system is_____**
Option A:	Scanner
Option B:	**Video monitor**
Option C:	Camera
Option D:	Printer
5.	**A common device for drawing, painting, or interactively selecting coordinate positions on an object is a**
Option A:	Image scanner
Option B:	**Digitizers**
Option C:	Data glove
Option D:	Touch panels
6.	**The Cartesian slope-intercept equation for a straight line is**
Option A:	**y = m.x + b**
Option B:	y = b.x + m
Option C:	y = x.x + m
Option D:	y = b + m.m
7.	**An accurate and efficient raster line-generating algorithm is**
Option A:	DDA algorithm
Option B:	Mid-point algorithm
Option C:	Parallel line algorithm
Option D:	**Bresenham's line algorithm**
8.	**A dotted line can be displayed by generating**
Option A:	Very short dashes with spacing equal to and greater than dash size
Option B:	Very long dashes with spacing equal to or greater than dash size
Option C:	**Very short dashes with spacing equal to and greater than dash size**
Option D:	Dots

9.	**The algorithm which displays line-type attributes by plotting pixel spans is**
Option A:	**Raster line algorithm**
Option B:	Raster scan algorithm
Option C:	Random line algorithm
Option D:	Random scan algorithm
10.	**The color code "000" is for**
Option A:	White
Option B:	**Black**
Option C:	Blue
Option D:	Green
11.	**Assuming that one allows 256 depth value levels to be used, how much memory would a 512 x 512 pixel display require to store the Z-Buffer?**
Option A:	512 K
Option B:	**256 K**
Option C:	1024 K
Option D:	128 K
12.	**Consider the three points, A(3, 6,4); B(2, 5, 5); C(O, 3, 7) and the view point V(l, 4,6).Choose the correct option(s).**
Option A:	C Hides A and B, if viewed from V
Option B:	C Hides A but not B, if viewed from V
Option C:	A Hides B but not C, if viewed from V
Option D:	**B Hides A but not C, if viewed from V**
13.	**A line connecting the points (1, 1) and (5,3) is to be drawn, using the DDA algorithm. Find the value of x and y increments.**
Option A:	x-increment = 1 ; y-increment = 1
Option B:	x-increment = 0.5; y-increment = 1
Option C:	**x-increment = 1 ; y-increment = 0.5**
Option D:	none of the above
14.	**A Bezier cubic curve with control points Po, Pi' P2, P3 is defined by the equation** $f(u) = \sum_{i=0}^{3} P_i B_i^3(u)$ $B3_2$ is
Option A:	$(1-u)^3$
Option B:	u^3
Option C:	$3u(1-u)^2$
Option D:	**$3u^2(1-u)$**
15.	**Perform window to viewport transformation for the point (20, 15). Assume that (X_{wmin}, Y_{wmin}) is (0, 0) (X_{wmax}, Y_{wmax}) is (100, 100); (X_{vmin}, Y_{vmin}) is (5, 5); (X_{vmax} ,Y_{vmax}) is (20, 20).The value of x and y in**

	 **viewport is**
Option A:	x=4,y=4
Option B:	x=3,y=3
Option C:	**x=8,y=7.25**
Option D:	x=3,y=4
16.	**We can generate the dashes in the various octants and the circle path with vertical path using**
Option A:	Circles
Option B:	Circle symmetry
Option C:	Circle curve
Option D:	Curve slope
17.	**Which method has the poorest character quality?**
Option A:	Stroke method
Option B:	Bitmap method
Option C:	**Starbust method**
Option D:	Dot-matrix method
18.	**What happens to intensity if an area of overlapping increases?**
Option A:	Intensity remains same
Option B:	Intensity decreases
Option C:	**Intensity increases**
Option D:	Can't say anything
19.	**In 2D-translation, a point (x, y) can move to the new position (x', y') by using the equation.**
Option A:	x'=x+dx and y'=y+dx
Option B:	**x'=x+dx and y'=y+dy**
Option C:	X'=x+dy and Y'=y-dx
Option D:	X'=x-dx and y'=y-dy
20.	**If two pure reflections about a line passing through the origin are applied successively the result is _____**
Option A:	**Pure rotation**
Option B:	Quarter rotation
Option C:	Half rotation
Option D:	True reflection

Q2	**Solve any Two Questions out of Three 10 marks each**
A	Define window, viewport and derive window to viewport transformation with proper example.
B	Derive the transformation matrix to magnify a triangle A(0,0), B(1,2), C(3,2) to twice its size while maintaining (3,2) as a fixed point.
C	Explain the 8-connected-pixel flood fill algorithm with an example. Compare it with boundary fill algorithm.
Q3	**Solve any Two Questions out of Three 10 marks each**
A	Write short notes Any Two on: 1)Sweep Representation 2) Animation 3)Fractal and koach curve
B	What is meant by Bezier curve? Explain the properties of a Bezier curve.
C	Explain the construction of a Koch curve with suitable examples and neat diagrams