

University of Mumbai

Examination 2020

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

Program: Information Technology

Curriculum Scheme: Rev 2016

Examination: TE Semester V

Course Code: ITDLO5015 and Course Name: Computer Graphics & Virtual Reality

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	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
2.	What is the initial value for the decision parameter in the midpoint circle algorithm?
Option A:	$5/4-r$
Option B:	$r-5/4$
Option C:	$4/5-r$
Option D:	$r-4/5$
3.	In Midpoint circle algorithm, if points are generated from 90 degrees to 45 degrees and (x,y) are the Coordinate of last scan converted pixel then the next pixel coordinate is
Option A:	$(x+1,y+1)$ or $(x-1,y-1)$
Option B:	$(x+1,y)$ or $(x,y+1)$
Option C:	$(x,y+1)$ or $(x+1,y-1)$
Option D:	$(x+1,y)$ or $(x+1,y-1)$
4.	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 fill algorithm
Option C:	Flood-fill algorithm
Option D:	Seed-fill algorithm
5.	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 rotations about the reference point
Option D:	Negative direction
6.	If we have applied scaling by 2 units in both directions and received final coordinates of the polygon, then to recover the original coordinates of the polygon we have to apply scaling transformation with...
Option A:	$S_x=2, S_y=2$
Option B:	$S_x=1/2, S_y=1/2$
Option C:	$S_x=1/2, S_y=2$
Option D:	$S_x=2, S_y=1/2$
7.	The region against which an object is clipped is called a
Option A:	Clip Window
Option B:	Boundary
Option C:	Enclosing Rectangle
Option D:	Clip Square
8.	According to Cohen-Sutherland algorithm, a line is completely outside the window if
Option A:	The endpoints region code are nonzero values
Option B:	If L bit and R bit are nonzero.
Option C:	The region codes of line endpoints have a '1' in the same bit position.
Option D:	The region codes of line endpoints have a '0' in the same bit position.
9.	In Sutherland -Hodgeman polygon clipping algorithm, if the first vertex of the edge is outside the window boundary and the second vertex of the edge is inside then _____ and _____ are added to the output vertex list.
Option A:	First vertex, second vertex
Option B:	First intersection and second intersection point of the polygon edge
Option C:	First vertex, the intersection point of the polygon edge with the window boundary
Option D:	Second vertex, the intersection point of the polygon edge with the window boundary
10.	Following are coordinates of the clipping window : Lower Left Corner (20,20) and Upper Right Corner (80,80). Whether a point at (10,50) is visible or not?
Option A:	Visible
Option B:	Partially Visible
Option C:	Completely Exterior
Option D:	Interior
11.	What is the major difference(s) between perspective and parallel projection?
Option A:	Parallel projection can only be used with objects containing parallel edges.
Option B:	Perspective projection gives a more realistic representation of an object.
Option C:	Perspective projection can only be used for creating oblique and not isometric pictorials.

Option D:	Parallel projection gives a more realistic representation of an object.
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.	Fractals deals with curves that are?
Option A:	regularly irregular
Option B:	irregularly irregular
Option C:	irregularly regular
Option D:	regularly regular
14.	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
15.	A type of VR environment in which subjects are visually isolated from the real environment
Option A:	Semi Immersive
Option B:	Immersive
Option C:	Non Immersive
Option D:	Augmented
16.	Why does virtual reality enhance instruction?
Option A:	It allows teachers to communicate with parents
Option B:	It tally's rewards to help with classroom management
Option C:	It provides a deeper understanding with realistic 3D imagery
Option D:	Just for playing
17.	_____ is all about the process to generate two-dimensional images from given virtual cameras and 3D objects.
Option A:	Pipeline
Option B:	Scene graphs
Option C:	Rasterization
Option D:	Graphics Rendering Pipeline
18.	Which of the following is NOT a modeling technique of VR?
Option A:	Geometric Modeling
Option B:	Logical Modeling
Option C:	Physical Modeling
Option D:	Behavioral Modeling

19.	Sequence of writing VRML files _____
Option A:	File header, comments, nodes, fields, values
Option B:	File header, nodes, values, fields, comments
Option C:	File header, fields, comments, nodes, values
Option D:	File header, comments, fields, nodes, values
20.	The VR system should support the frame rate of at least _____ frame/s.
Option A:	10 or more
Option B:	15 or more
Option C:	25 or more
Option D:	30 or more

Please use either of the 3 option given below while setting up the subjective/descriptive questions

Option 1

Q2.	Solve any Four out of Six	5 marks each
A	Explain the Applications of Virtual Reality	
B	Explain parallel & projective projections	
C	Explain boundary filling and flood filling algorithm	
D	Explain Graphical Rendering Pipeline	
E	Explain Virtual Reality Modeling	
F	Write a short note on: Antialiasing Techniques	

Option 2

Q3.	Solve any Two Questions out of Three	10 marks each
A	Explain Bresenham's Line Drawing Algorithm. How is it different from DDA?.	
B	Generate five points on Cubic Bezier Curve with control points A(0,0), B(1,2), C(3,2), D(2,0)	
C	Define Virtual Reality. Explain components of VR	