R20

Subject with Code: Computer Graphics(20MC9110)   **Course & Branch**: MCA

Regulation: R20   **Year & Sem:** I-MCA & II-Sem

UNIT –I

INTRODUCTION AND OUTPUT PRIMITIVES

1	a)	Describe Computer Graphics.	[L2][CO2]	**[3M]**
	b)	Identify various applications of Computer Graphics.	[L2][CO2]	**[9M]**
2	a)	List out various video display devices?	[L1][CO2]	**[4M]**
	b)	Explain Raster and Random Scan Displays.	[L2][CO2]	**[8M]**
3	a)	Explain Raster scan system with its architecture.	[L2][CO2]	**[8M]**
	b)	Illustrate various input devices using in graphics workstation.	[L3][CO2]	**[4M]**
4		Express the steps for drawing a Line by using Analyser Algorithm. Find the intermediate coordinates between the points (0,0) to (7,7).	[L2][CO2]	**[12M]**
5	a)	Construct the steps for Line DDA Algorithm.	[L6][CO2]	**[8M]**
	b)	Calculate DDA Line Co-ordinates between the points (2,3) & (8,9).	[L4][CO2]	**[4M]**
6	a)	Construct the steps for Bresenham's Line Algorithm.	[L6][CO2]	**[8M]**
	b)	Calculate Bresenham's Line Co-ordinates for the points (20,10) & (30,18).	[L4][CO2]	**[4M]**
7		Choose the steps for generating Mid-point Circle Algorithm with example.	[L5][CO2]	**[12M]**
8		Choose the steps for generating Mid-point Ellipse Algorithm with example.	[L5][CO2]	**[12M]**
9	a)	Explain in detail about boundary fill algorithm.	[L2][CO2]	**[6M]**
	b)	Discuss about flood fill algorithm with function.	[L2][CO2]	**[6M]**
10	a)	What are the approaches to fill the area of primitives?	[L1][CO2]	**[4M]**
	b)	Discuss about scan line polygon fill algorithm.	[L2][CO2]	**[6M]**

UNIT –II
2D AND 3D GEOMETRICAL TRANSFORMS

1	**a)**	List out various 2D Geometric Transformations.	[L1][CO4]	**[6M]**
	b)	Demonstrate Translation in 2D with an example.	[L2][CO4]	**[6M]**
2	**a)**	Explain 2D Rotation with an example.	[L2][CO4]	**[6M]**
	b)	Demonstrate Scaling in 2D with an example.	[L2][CO4]	**[6M]**
3		Determine various kinds of 2D composite transforms in detailed with example.	[L3][CO4]	**[12M]**
4	**a)**	Demonstrate 2D Reflection with an example.	[L2][CO4]	**[6M]**
	b)	Demonstrate the Shearing 2D Transformation with an example.	[L2][CO4]	**[6M]**
5	**a)**	Differentiate 2D & 3D with various transformations.	[L4][CO4]	**[4M]**
	b)	Show matrix representation for various 2D transformations.	[L1][CO4]	**[8M]**
6		Identify various kinds of 3D basic transformations with examples.	[L3][CO4]	**[12M]**
7	**a)**	Demonstrate Translation in 3D with an example.	[L2][CO4]	**[6M]**
	b)	Explain 3D Rotation with an example.	[L2][CO4]	**[6M]**
8	**a)**	Demonstrate Scaling in 3D with an example.	[L2][CO4]	**[6M]**
	b)	List out various 3D Geometric Transformations.	[L1][CO4]	**[6M]**
9	**a)**	Demonstrate reflection transformation in 3D with an example.	[L2][CO4]	**[6M]**
	b)	Demonstrate shearing transformation in 3D with an example.	[L2][CO4]	**[6M]**
10		List out and explain various kinds of 3D composite transformations with example.	[L2][CO4]	**[12M]**

UNIT –III
2D & 3D VIEWING

1	**a)** What do you mean by 2D Pipeline viewing?	[L1][CO3]	**[4M]**
	b) Explain the transformation from window to viewport.	[L2][CO3]	**[8M]**
2	Demonstrate steps for window to viewport coordinate transformation with example.	[L2][CO3]	**[12M]**
3	**a)** Define Clipping. Explain types of Clipping.	[L2][CO3]	**[6M]**
	b) Illustrate point clipping with an example.	[L3][CO3]	**[6M]**
4	Analyze the steps to clip a line by using Cohen-Sutherland algorithm with an example.	[L3][CO3]	**[12M]**
5	**a)** Discuss about line clipping.	[L2][CO3]	**[5M]**
	b) Identify the steps for clipping a line by using Liang Barsky.	[L2][CO3]	**[7M]**
6	**a)** Discuss about polygon clipping.	[L2][CO3]	**[5M]**
	b) Demonstrate Sutherland-Hodgeman Polygon Clipping.	[L2][CO3]	**[7M]**
7	**a)** Illustrate the steps involved in 3D Viewing Pipeline with a diagram.	[L3][CO3]	**[6M]**
	b) Discuss viewing coordinate and explain window to viewing coordinate transformation.	[L2][CO3]	**[6M]**
8	Explain in detail about polygon surface with an example.	[L2][CO3]	**[12M]**
9	**a)** Define Curves. Explain types of Curves.	[L2][CO3]	**[5M]**
	b) Identify the properties of Bezier Curves.	[L3][CO3]	**[7M]**
10	Discuss in detail about Bezier Curves.	[L2][CO3]	**[12M]**

UNIT –IV
VISIBLE SURFACE DETECTION METHODS & ILLUMINATION MODELS AND SURFACE RENDERING METHODS

1	a)	What do you mean by Visible Surface Detection?	[L1][CO5]	**[4M]**
	b)	Explain classification of VSD Algorithms	[L2][CO5]	**[8M]**
2	a)	Build the steps to detect object Back-Face.	[L3][CO5]	**[6M]**
	b)	Build the steps for Depth-Buffer Method.	[L3][CO5]	**[6M]**
3	a)	Describe Depth-Sort Method when the objects are overlapped.	[L1][CO5]	**[6M]**
	b)	Illustrate Scan line Method with an algorithm.	[L3][CO5]	**[6M]**
4	a)	Illustrate Area subdivision Method with an algorithm.	[L3][CO5]	**[6M]**
	b)	Discuss about object space and image space methods.	[L2][CO5]	**[6M]**
5	a)	Illustrate Z-Buffer Method with an algorithm.	[L3][CO5]	**[6M]**
	b)	Analyze the steps involved in Binary Space Partitioning.	[L4][CO5]	**[6M]**
6		Determine the visible surface by using scan-line method. With example.	[L3][CO5]	**[12M]**
7		Classify and explain various illumination models.	[L4][CO5]	**[12M]**
8		Explain the following in details i) Ambient Light ii) Diffuse Reflection iii) Specular Reflection	[L2][CO5]	**[12M]**
9	a)	Discuss the factors on which lightning effect depends.	[L2][CO5]	**[6M]**
	b)	Illustrate Halftone Pattern briefly.	[L3][CO5]	**[6M]**
10		List and explain in detail about light sources for an object.	[L2][CO5]	**[12M]**

UNIT –V
COLOR MODEL AND COLOR APPLICATIONS, COMPUTER ANIMATIONS

1	**a)**	Discuss about color models.	[L2][CO6]	**[6M]**
	b)	Explain various properties of Light.	[L2][CO6]	**[6M]**
2		Choose and Explain various Standard Primaries Color Model.	[L5][CO6]	**[12M]**
3	a)	Write short notes on XYZ Color Model.	[L1][CO6]	**[4M]**
	b)	Explain RGB Color Model in detail.	[L2][CO6]	**[8M]**
4	**a)**	Explain in detail about CMY Color Model.	[L2][CO6]	**[6M]**
	b)	Explain in detail about HSV Color Model.	[L2][CO6]	**[6M]**
5	**a)**	What are the various color applications?	[L1][CO6]	**[6M]**
	b)	Write short notes on YIQ Color Model.	[L1][CO6]	**[6M]**
6	**a)**	Explain in detail about Additive Color Model.	[L2][CO6]	**[6M]**
	b)	Explain in detail about Subtractive Color Model.	[L2][CO6]	**[6M]**
7		Design the steps involved in Animation Sequence.	[L6][CO6]	**[12M]**
8		Explain various animation functions with example.	[L2][CO6]	**[12M]**
9	**a)**	Write short notes on Animation.	[L1][CO6]	**[6M]**
	b)	Identify various application areas of Animation.	[L3][CO6]	**[6M]**
10		Describe various types of animations with their merits and demerits.	[L2][CO6]	**[12M]**

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