P P SAVANI UNIVERSITY

Fourth Semester of B. Tech. Examination

November 2022

SECE2051 Computer Graphics & Multimedia

5.12.2022, Monday **Time: 1:00 p.m. To 3:30 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1	Answer the following: (Any Five)	**[05]**	**CO**	**BTL**
(i)	Define Pixel.		**1**	**1**
(ii)	Explain following terms: (a) Luminance (b) Dot Pitch.		**1**	**2**
(iii)	Define slope of line with equation.		**1**	**1**
(iv)	Define Polygon. Explain different types of Polygon.		**1**	**1**
(v)	What is transformation? List various types of transformation.		**2**	**2**
(vi)	Define following terms: (a) clipping and (b) clip window.		**2**	**2**
Q - 2 (a)	Explain working of CRT display system with diagram.	**[05]**	**1**	**2**
Q - 2 (b)	Explain mechanism of raster scan display.	**[05]**	**1**	**2**
	OR			
Q - 2 (a)	Explain in detail various application areas where graphics is applied.	**[05]**	**1**	**2**
Q - 2 (b)	Explain Mid Point Circle drawing algorithm with suitable example.	**[05]**	**2**	**3**
Q - 3 (a)	List the methods available to check whether the given point is inside the polygon or not. Explain Even-Odd method in detail.	**[05]**	**2**	**3**
Q - 3 (b)	Define rotation. Explain types of rotation that can be performed on a 2D object.	**[05]**	**2**	**2**
	OR			
Q - 3 (a)	Explain 8 connected neighborhood flood fill method with example.	**[05]**	**2**	**3**
Q - 3 (b)	Explain X-shear and Y-shear with matrix representation. Justify your answer with suitable example.	**[05]**	**2**	**4**
Q - 4	Attempt any one of the following:	**[05]**		
(i)	Write a program code to draw a line using inbuilt function then perform translation on it. Also make use of outtextxy to highlight original and translated line. (Hint: Make use of C programming Concepts)		**3**	**3**
(ii)	Explain different character generation methods in detail.	**[05]**	**2**	**2**

SECTION – II

Q - 1	Answer the following: (Any Five)	**[05]**	**CO**	**BTL**
(i)	What do you mean by 3D object representation?		3	2
(ii)	Define spline in computer graphics.		3	2
(iii)	Define Projection.		2	1
(iv)	What is color model?		2	1
(v)	List components of multimedia.		2	1
(vi)	List different audio file formats.		2	1
Q - 2 (a)	What spline representation? Discuss about (a) control points (b) interpolating curves (c) approximation curve (d) convex hull and (e) control graph with suitable example.	**[05]**	3	2
Q - 2 (b)	Define Projection. Explain parallel projection in detail.	**[05]**	2	2
	OR			
Q - 2 (a)	Define Bezier curve. Explain applications, properties and equation of Bezier curve with suitable diagram.	**[05]**	2	4
Q - 2 (b)	Explain about 3D Transformation and represent matrix representation for – (a) translation, (b) scaling, (c) rotation and (d) shearing.	**[05]**	2	2
Q - 3 (a)	Write short note on – YIQ color model.	**[05]**	2	2
Q - 3 (b)	What is multimedia? Explain characteristics of multimedia presentation.	**[05]**	2	2
	OR			
Q - 3 (a)	Differentiate between object space method and image space method.	**[05]**	3	4
Q - 3 (b)	Explain depth buffer method (z-buffer method) of surface detection.	**[05]**	3	2
Q - 4	Attempt any one:	**[05]**		
(i)	Define polygon surface. Explain the following terms in relation to polygon surface – (a) polygon table, (b) polygon meshes and (c) polygon equation.		2	2
(ii)	Write a short note on 3D viewing.		2	2

****

CO : Course Outcome Number BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create