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Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam – 603 110

(An Autonomous Institution, Affiliated to Anna University, Chennai)

Department of Computer Science and Engineering

Continuous Assessment Test – III

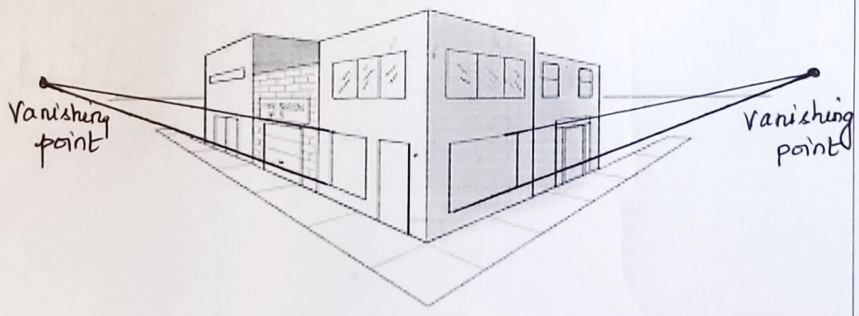
Question Paper

Degree & Branch	B.E CSE				**Semester**	VII
Subject Code & Name	UCS1703 Graphics and Multimedia				**Regulation:**	**2018**
Academic Year	2023-2024 ODD	**Batch**	2020-24	**Date**	**07.11.2023**	**FN**
Time: 08:10 - 09:40 a.m (90 Minutes)	**Answer All Questions**				**Maximum: 50 Marks**	

(K1: Remembering, K2: Understanding, K3: Applying, K4: Analyzing, K5: Evaluating)

CO1	Apply the algorithms to manipulate output primitives such as line, circle, ellipse (K3)
CO2	Demonstrate transformations, representations and clipping on 2D objects and map window to viewport transformations (K3)
CO3	Apply three Dimensional concepts like representations, geometric transformations, and projections (K3)
CO4	Understand the working of different illumination and color models used to render an animation scene (K2)
CO5	Understand different types of multimedia file formats, compression techniques and design basic 3D Scenes using Blender (K2)

Part – A (6×2 = 12 Marks)

K1	1. What are the three types of Axonometric projections?	CO3	1.4.1
K2	2. Compare and contrast Cavalier and Cabinet projections.	CO3	1.4.1
K3	3. Identify the type of projection shown in the figure below and draw the position of the view plane with respect to the co-ordinate origin to achieve this projection. 	CO3	1.3.1 1.4.1
K1	4. What is ambient light and what is the contribution of ambient light in adding visual realism to a scene?	CO4	1.2.1

K3	5. Keyframe *k* shows a racecar parked in its initial position. Keyframe *k+n* shows the car participating in the race. Identify how the in-between frames from keyframe *k* to keyframe *k+n* are placed on a timeline graph to show the acceleration of the car.	CO4	1.1.1 2.1.2
K1	6. List two modern multimedia tools for rendering 2D and 3D graphics.	CO5	5.1.1

Part – B (3×6 = 18 Marks)

K2	7. Explain the steps in the design of an animation sequence.	CO4	13.3.1
K3	8. A scene is rendered where the objects appear shiny and have highlights. Identify and derive the component of the illumination model used to render the scene when the vector between the light source and the object is given as *s* and vector between the object and the viewer is given as *v*.	CO4	2.1.2 13.2.1
K3	9. A color C in a three primary color model is defined with components (c1, c2, c3). Identify the representation of color C in additive and subtractive color systems and explain it with one example for each system.	CO4	2.1.2 13.2.1

Part – C (2×10 = 20 Marks)

K3	10. Consider a 3D coordinate system where y-axis is vertical, and z-axis is pointing towards the viewer. A line with endpoints A(15,10,5) and B(10,15,20) is projected onto XY plane. Apply Cavalier projection with $\varphi = 45$ degrees and calculate the projected line endpoints.	CO3	1.4.1 13.3.1
	(OR)		
K3	11. A point (x,y,z)=(3,2,1) is projected using oblique parallel projection to a position (x_p,y_p) on the XY plane. The projector makes an angle $\alpha = 45$ with the line of length L on the projection plane that joins (x_p,y_p) and (x,y). The line L makes an angle $\phi = 30$ with the horizontal direction in the projection plane. Apply the projection to find the point (x_p,y_p).	CO3	1.4.1 13.3.1
K2	12. Explain in detail the JPEG Compression scheme.	CO5	1.4.1
	(OR)		
K2	13. Explain with a neat diagram the architecture of a multimedia system and its defining objects.	CO5	1.4.1

Prepared By	Reviewed By	Approved By
Course Coordinator	PAC Team	HOD,CSE