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Daffodil International University

Faculty of Science & Information Technology

Department of Computer Science & Engineering

Final Semester Examination, Spring 2026

Course Code: CSE421, Course Title: Computer Graphics

Level: 4 Term: 2 Batch: 62, 63

Time: 2 Hrs **Marks: 40**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	*a)*	In an examination, a student is given a 3D object with a depth of 10 cm and is asked to draw it using oblique projection. Explain the concept of oblique projection. Then, show how the receding edges are drawn in different types of oblique projection methods, including both their lengths and angles, and compare these methods.	[5]	CO1
	b)	An animation studio creates a cartoon where some scenes are drawn frame-by-frame manually, while other scenes are generated by defining key positions and using mathematical formulas. Based on this scenario, identify appropriate animation techniques for each case by demonstrating how each technique would be used to generate motion in the animation.	[5]	
	c)	A newspaper printing company and a digital display system convert grayscale images into black-and-white format using different methods. Based on this scenario, explain halftoning and dithering, illustrate how each technique represents intensity, and compare their differences in application and visual output.	[5]	
2.		A graphics system defines a window with coordinates Xw_min = 10, Xw_max = 50 and Yw_min = 20, Yw_max = 80, which is mapped onto a viewport with Xv_min = 200, Xv_max = 600 and Yv_min = 100, Yv_max = 500; if a point P(30, 50) lies inside the window, apply the window-to-viewport transformation formula to determine its corresponding coordinates in the viewport.	[5]	CO2
3.		In the following Figure 1, the rectangular box depicts a clipping window, and the black lines depict the axes. Now, identify line categories of the lines and apply line clipping algorithms to find clipped points.	[12]	CO3

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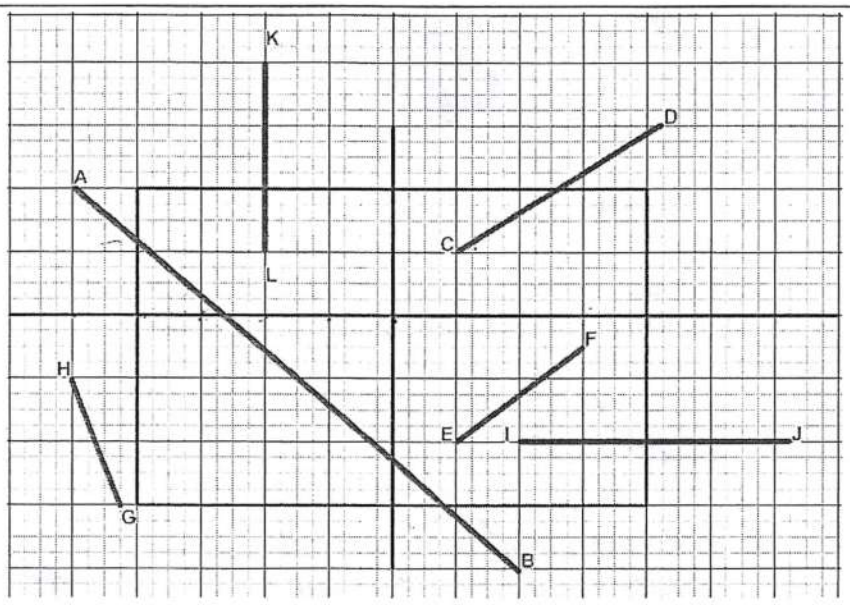


Figure : 1

4.		Given a clipping window "abcdefghi" and a polygon "ABCDEFGHIJK" in Figure 2, Apply polygon clipping using the Weiler–Atherton algorithm in a clockwise direction.	[8]	CO3

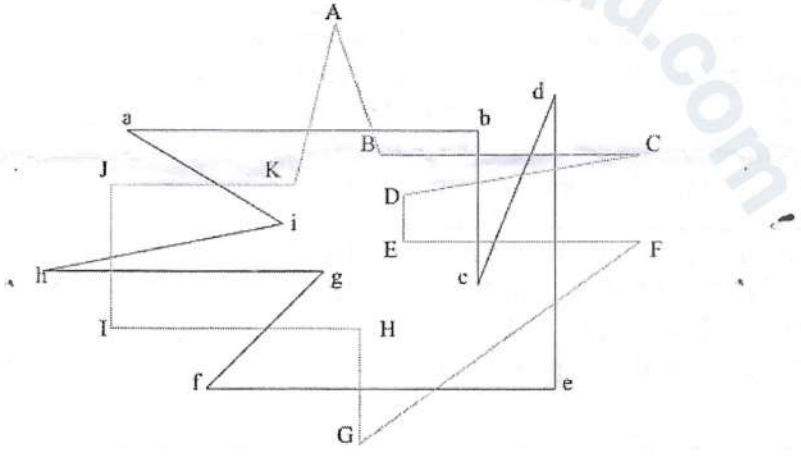


Figure : 2