



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-IWinter 2023		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester:III	
	Name of Programme:B.Tech (Computer Engineering/Computer Science and Design)	Pattern:2022	
	Name of Course:Computer Graphics	Course Code:COM222002	
	Max. Marks:30	Duration:1	

	<p><b>Instructions:</b> Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.</p> <ol style="list-style-type: none"><li>1. This question paper contains two page(s).</li><li>2. Answer to each new question is to be started on a new page.</li><li>3. Assume suitable data wherever required, but justify it.</li><li>4. Draw the neat labelled diagrams, wherever necessary.</li><li>5. The last columns indicates the Course Outcome</li></ol>	
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**Question No. 1 Attempt following Question**

- a) What is frame buffer? Why it is important to use frame buffer? Is it a dynamic storage structure? (5) CO1

**OR**

- b) Differentiate between random scan and raster scan display. (5) CO1
- c) Scan convert a line with end points (10, 5) & (16, 10) using DDA line drawing algorithm. (5) CO1

**OR**

- d) Consider an origin centred circle of radius 8. Use Bresenham Circle generation algorithm to generate only the first quadrant. (5) CO1
- e) Explain following terms - Display file structure, Display file interpreter (5) CO1

**OR**

- f) What is Segment table? Explain operations segment creation and closing on segment table . (5) CO1

**Question No. 2 Attempt following Question**

- a) What is polygon? Explain even-odd method to determine polygon interior points with suitable example. (5) CO2

**OR**

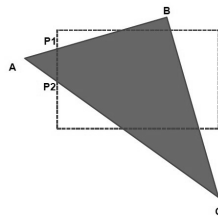
- b) What is polygon filling? Explain boundary fill algorithm with suitable example? (5) CO2

- c) Explain the terms windowing, clipping, viewport, object space and image space. (5) CO2

**OR**

- d) Use Cohen Sutherland outcode algorithm to clip two lines P1(40,15) to P2(75,45) and P3(70,20) to P4(100,10) against a window A(50,10) , B(80,10), C(80,40), D(50,40). (5) CO2

- e) Clip the polygon ABC against the given window. Write the final vertex set against each window boundary.



(5) CO2

**OR**

- f) What are the limitations of Sutherland-Hodgeman polygon clipping algorithm? How Weiler-Atherton algorithm is better than Sutherland-Hodgeman polygon clipping algorithm? (5) CO2