



**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>	
--	--	--

**Question No. 1 Attempt following Question**

- a) Define Pixel, Aspect Ratio, Frame buffer and Resolution. (5) CO1

**OR**

- b) Explain any 5 applications of Computer Graphics in brief. (5) CO1
- c) Using DDA algorithm find out which pixels can be turned on for a line with end points (-1, -2) and (4, 8). (5) CO1

**OR**

- d) Using Bresenhams algorithm for circle drawing, find first quadrant coordinates on circle with origin centered circle and radius 8. (5) CO1
- e) What is Segment table? How visibility is important in segment table? Explain segment deletion operation. (5) CO1

**OR**

- f) Explain following terms - Display file structure, Display file interpreter. (5) CO1

**Question No. 2 Attempt following Question**

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

**OR**

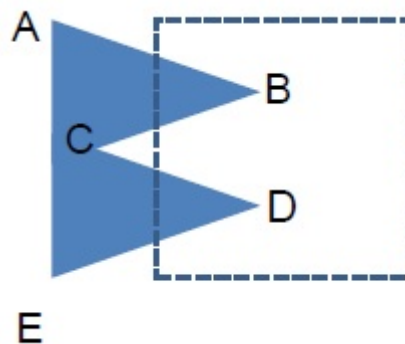
- b) What is polygon filling? Explain flood fill algorithm with example? (5) CO2

- c) Apply the Cohen Sutherland line clipping algorithm to clip the line segment with coordinates (30, 60) and (60, 25) against the window with (Xmin, Ymin) (10, 10) and (Xmax, Ymax) (50, 50). (5) CO2

**OR**

- d) What is point clipping & Line clipping? Explain with suitable example. (5) CO2

- e) Clip the polygon ABCDE 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 WeilerAtherton algorithm is better than Sutherland Hodgeman polygon clipping algorithm? (5) CO2