BRAC UNIVERSITY

Department of Computer Science and Engineering
CSE423 : Computer Graphics

Examination: Quiz 2 Semester:Fall 2025
Duration: 35 Minutes Full Marks: 20

Answer the following questions. You **MUST** show the steps/calculations where applicable. Figures in the right margin indicate marks.

Name:	ID:

1. A rectangular clipping window is defined by the coordinates (150, 300) and (700, 500). A line segment is given by the equation: $y=-0.4x+250$ where x is in the range [100, 250] (i.e., the segment starts at x = 100 and ends at x = 250). Use the Cyrus-Beck Line Clipping Algorithm to determine the portion of the line segment that lies inside the clipping window and provide the new clipped segment. [8]
2. A clipping window is defined with boundaries (x_min, y_min) = (-40, -20) and (x_max,y_max) = (20, 30). A line segment with endpoints P1(-10, -50) and P2(15, 25) needs to be tested using the Cohen-Sutherland Line Clipping Algorithm.
    A. Determine whether the line segment is fully accepted, fully rejected, or partially inside the clipping window. [2]
    B. If the line segment is partially inside, apply the Cohen-Sutherland Algorithm step by step to compute the new clipped endpoints that lie within the viewing window. [6]
3. A 3D clipping volume is defined by the boundaries: x_min=120, x_max=450, y_min=200, y_max=600, z_min=75, z_max=350. Four points are given below. Determine their outcodes based on the Cohen-Sutherland clipping algorithm:

a. (100,250,150)
b. (400,700,250)
c. (180,190,50)
d. (500,450,375) [4]