Set—**02**

Shahjalal University of Science and Technology
Department of Computer Science and Engineering
3^{rd} year 2^{nd} Semester Final Examination—December 2020 (Session 2017-18)
Course No.—**CSE 373**
Course Title—**Computer Graphics**
Time—**5 Hours** Credit: **3.00** Total Marks#**30**

(Answer All the Questions)

Group A

1. Answer the following **Five** Questions. $5 \times 1 = 5$
   (a) Give an example of a subtractive color model.
   (b) If an image has a width of **3** inches and an aspect ratio of **1.5**, what is its height?
   (c) If **(x, y)** is a point on a circle in the **third** quadrant, what will be the corresponding point in the **fourth** quadrant?
   (d) Compute the resolution of a 2×2 inch image that has 512×512 pixels.
   (e) Define dimetric projection.

2. Answer the following **Two** Questions. $2 \times 2.5 = 5$
   (a) Suppose two straight lines with slopes $\mathbf{m = 0}$ and $\mathbf{m = 1}$ are scan converted using Bresenham's line drawing algorithm. Will there be any difference in brightness between those two lines? If yes, why?
   (b) Rotate **P(4, 5, 5)** 45° (Clockwise) about the **z-axis**.

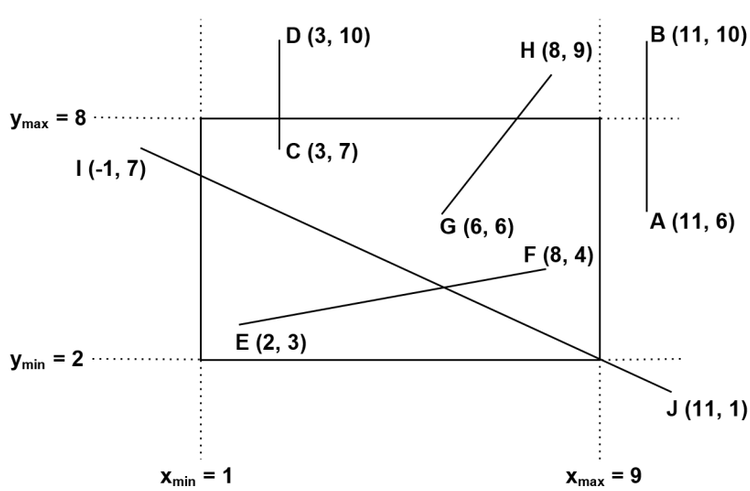
3. Magnify the triangle with vertices **A(-2, 3)**, **B(1, -1)** and **C(4, 7)** to thrice its size while shifting its centroid to **P(-5, -4)**. 5

Group B

1. Answer the following **Five** Questions. $5 \times 1 = 5$
   (a) What is the resolution of an image?
   (b) If intensity level of a 768×640 digital image is 8 what will be the size of the image in kilobyte?
   (c) What is an 8-connected region?
   (d) Sutherland-Hodgman algorithm only works for convex polygons — **True** or **False**?
   (e) What is cabinet projection?

2. Answer the following **Two** Questions. $2 \times 2.5 = 5$
   (a) Find a normalization transformation that maps a window whose lower left corner is at **P(1, 1)** and upper right corner is at **Q(3, 5)** onto a viewport that has lower left corner at **L(0, 0)** and upper right corner **R**(½, ½).
   (b) The coordinates of the vertices of the polygon ABCDEFGH are A(2, 4), B(9, 4), C(9,7), D(8, 7), E(8, 9), F(4, 9), G(4, 7) and H(2, 7). Write the initial edge list for the polygon for scan conversion.

3. Use the Liang-Barsky algorithm to clip the lines in the following figure. 5



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