

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA Summer 2017–18 Examination

Semester: 5
Subject Code: 05101301
Subject Name: Computer Graphics

Date: 04/06/2018
Time: 02:00PM TO 04:30PM
Total Marks: 60

Instructions:

1. Figures to the right indicate full marks.
2. Make suitable assumptions wherever necessary.

Q.1 Answer the following.**(15)****(a) Define the followings.**

- 1 Tweening
- 2 Refresh buffer
- 3 Interface window
- 4 Clipping
- 5 Image Segmentation

(b) Do as Directed.

- 1 In which system, the Beam Penetration methods are commonly used
 - a) Raster-scan system b) Random-scan system
 - c) Only b d) Both a and b
- 2 A smallest screen element is known as.....
 - a) Resolution b) Pixel c) Persistence d) DotPitch
- 3 is the ratio of horizontal points to vertical points necessary to produce equal length lines in both direction.
 - a) Dot Pitch b) Resolution
 - c) Aspect Ratio d) Height-Width Ratio
- 4 Full form of line DDA algorithm is
 - a) Digital difference analyzer b) Direct differential analyzer
 - c) Digital differential analyzer d) Data differential analyzer
- 5 A line with endpoints codes as 0000 and 0100 is ?
 - a) Partially invisible c) Completely invisible
 - b) Completely visible d) Trivially invisible
- 6 Function is used to change the size of a character without changing the height:width ratio.
 - a) setTextSize(ts) b) setCharacterHeight(ch)
 - c) setCharacterSize(cs) d) setTextHeight(th)
- 7 A area of a display device to which a window is mapped as called _____
 - a) Windowing c) clipping
 - b) View-port d) None of above
- 8 A polygon which has all its sides of equal length and all its angles of equal measures is called a _____ polygon.
 - a) Convex b) Concave c) Regular d) None of above
- 9 In which transformation ,the shape of an object can be modified in any of direction depending upon the value assigned to them
 - a) Reflection b) Shearing c) Scaling d) None of these

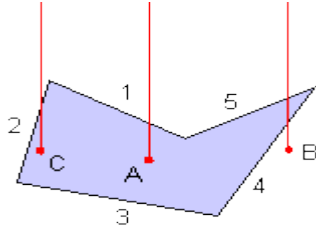
10 Smoothing filters are mostly used in _____.

- a) Blurring
- b) Noise reduction
- c) Contrast
- d) Both A and B

Q.2 Answer the followings.

(15)

- 1 Write advantages and disadvantages of Direct View Storage Tubes?
- 2 Explain Horizontal and Vertical retrace of an electron beam.
- 3 For the below given polygon, find out which point lies inside and which point lies outside the polygon using the Inside-Outside Problem.



- 4 Explain how Window Viewport mapping is done.
- 5 What is Noise in Digital Image? Why it appears in an image? List measures to remove it.

Q.3 Attempt any THREE.

(15)

- 1 Explain DDA Algorithm.
- 2 Write a note on MPEG standards.
- 3 List out the basic geometric transformations that alter the coordinate descriptions of an object. Explain them in detail.
- 4 Magnify the triangle with vertices A(0,0) ,B(1,1) and C(5,2) to twice its size while keeping C(5,2) fixed.
- 5 What is Image Analysis? Explain Digital Image Analysis. List down the application areas of Digital Image Analysis.

Q.4 Answer the following.

(15)

(a) Answer the following.

(05)

- 1 What is Compression? List and explain the different types of compression techniques.

(b) Answer the following.

(10)

- 1 Write a note on Cohen-Sutherland Line Clipping Algorithm. Find out the coordinates of the visible line intersecting and lying within the clipping area for point P(15,15) and Q(15,5). Clipping window is defined as A(10,20), B(20,20), C(20,10) and D(10,10).

OR

- 1 Explain Sutherland Hodgman Polygon Clipping Algorithm. For the given problem perform polygon clipping using Sutherland Hodgman algorithm and redraw the clipped polygon.(The rectangle indicates the clipping window)

