

PARUL UNIVERSITY
FACULTY OF IT & COMPUTER SCIENCE
BCA /IMCA Winter2019–20 Examination

Semester: 5
Subject Code:05101301/ 05301301
Subject Name: Computer Graphics

Date:25/11/2019
Time:10:30am to 01:00pm
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 following terms. (5)

- 1 Resolution
- 2 Frame buffer
- 3 Keyframe
- 4 Clipping
- 5 Image Restoration

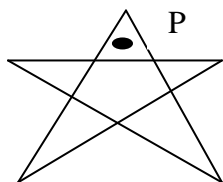
(b) Do as Directed. (Any 10) (10)

- 1 LED is an example of _____
a) Emissive device b) Non-Emissive device
c) Only b d) Both a and b
- 2 On a color monitor, the refresh buffer is also called
a) FrameBuffer b)Pixmap c) Bitmap d) Display File
- 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 GKS algorithm is
a) Graphical Kerberos System b) Graphical Kernal System
c) Graphs Kernal System d) None of the above
- 5 The region code of a point is 1001. The point is in the region of window.
a) Top right b) Top left
c) Bottom left d) Botton right
- 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 Coordinates of viewport are known as
a) World coordinates b)Polar coordinates
c) Screen coordinates d)Cartesian coordinates
- 8 A polygon is called If the line joining any two exterior points of the polygon lies completely outside the polygon.
a) Convex b) Concave c) Either a or b. d) None of above

- 9 The basic transformation includes
 a) Translation c) Scaling
 b) Rotation d) All of the above
- 10 The GIF format is much _____ to be downloaded or uploaded over the www
 a) Slower c) Medium
 b) Faster d) None of these

Q.2 Answer the followings. (15)

- 1 Write and explain application areas of Computer Graphics.
- 2 Differentiate functionality of LCD and LED.
- 3 For the below given polygon, find out whether the point “p” lies inside or outside the polygon using the Inside-Outside Problem.



- 4 List and explain the steps of Window Viewport mapping.
- 5 What is Image Sharpening? Why it is required?

Q.3 Attempt any THREE. (15)

- 1 Explain Bresenham's Line Drawing Algorithm. (5)
- 2 List features of JPEG and GIF formats. Compare and Contrast them. (5)
- 3 Explain in brief Translation, Scaling, Rotation, Reflection and Shearing. (5)
- 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)
- 5 Write fundamental steps of Digital Image Processing. (5)

Q.4 Answer the following. (15)

(a) Answer the following. (5)

- 1 Differentiate between Lossy and Lossless compression techniques.

(b) Answer the following. (10)

- 1 Explain Cohen-Sutherland Line Clipping Algorithm.

Window is defined as A(10,20), B(20,20), C(20,10) and D(10,10). Find visible portion of line P(15,15) and Q(15,5).

OR

- (a) Explain Liang-Barsky Line Clipping Algorithm. (5)**

Consider the window size as (5,9) to (5,9). Clip the line having coordinates (4,12) and (8,8) and find whether the line lies inside or outside the clipping window. Also find its intersection point if required.

(b) Answer the followings. (Any 2).

(10)

- 1** Differentiate between Raster and Random Scan Displays.
- 2** Explain the construction of Direct view Storage tubes. Also write its advantages & disadvantages
- 3** Explain Mid point Drawing Algorithm.