

Roll No. ....

## **BCA–17**

### **Interactive Computer Graphics**

Bachelor of Computer Application

(BCA–11/16/17)

Fifth Semester, Examination, 2018

**Time : 3 Hours**

**Max. Marks : 80**

**Note :** This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

#### **Section–A**

##### **(Long Answer Type Questions)**

**Note :** Section ‘A’ contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. What do you mean by projection ? How many types of projection are there ? Explain all the types of perspective projection with suitable example.
2. Discuss and differentiate the working of CRT monitors and flat panel displays with their working.
3. Derivate the liang-barsky algorithm and use it to clip the line  $P_1 (-15, -30) - P_2 (30, 60)$  against the

**(B-88) P. T. O.**

window having diagonally opposite corners as (0, 0) and (15, 15).

4. What is the need of Homogeneous co-ordinate system ? Derivate 2D Translation, Rotation, Shearing and Scaling matrices using Homogeneous coordinate.

### Section-B

#### (Short Answer Type Questions)

**Note :** Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. Explain the following color models :  
RGB, CMYK and HSV
2. Explain and derivate Bresenham's Ellipse drawing algorithm.
3. Find the reflection of a point (p, q) about a line  $y = mx + c$ .
4. Plot a circle centered at (5, 5) having radius of 5 units using Bresenham's circle generation alorithm.
5. What are the different types of Animation ?
6. Magnify the triangle P (0, 0), Q (2, 2) and R (10, 4) to four times its size while keeping R (10, 4) fixed.
7. Write short notes on the following :
  - (i) Persistence
  - (ii) Aspect Ratio
  - (iii) Horizontal and Vertical Retracing
  - (iv) Morphing
8. What do you mean by refreshing of CRT ? How to overcome from this problem ?

**Section-C****(Objective Type Questions)**

**Note :** Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. Raster images are more commonly called :
  - (a) bitmap
  - (b) pixmap
  - (c) Both (a) and (b)
  - (d) None of these
2. VGA stands for :
  - (a) Video Graphics Adopter
  - (b) Visual Graphics Array
  - (c) Both (a) and (b)
  - (d) None of these
3. DVST stands for :
  - (a) Direct View Storage Tube
  - (b) Digital View Storage Tube
  - (c) Display View Storage Tube
  - (d) Direct View System Tube
4. Hue of colour is related to :
  - (a) Luminance
  - (b) Saturation
  - (c) Incandescence
  - (d) Wavelength

5. A circle, if scaled only in one direction becomes a/an :  
(a) Parabola (b) Hyperbola  
(c) Ellipse (d) None of these
6. In Bresenham's algorithm error term is initialized to :  
(a) 0 (b) 1  
(c)  $-1/2$  (d) None of these
7. A line with endpoints code as 0010 and 0100 is :  
(a) Completely inside  
(b) Completely outside  
(c) Clipping candidate  
(d) Both (a) and (c)
8. Computer graphics models are now commonly used for making :  
(a) Television show (b) Motion pictures  
(c) Music video (d) All of these
9. The Total No. of pixels that can be displayed without overlap on a CRT is referred as :  
(a) Persistence (b) Frame buffer  
(c) Resolution (d) None of these
10. CAD stands for :  
(a) Common Array Design  
(b) Computer Aided Design  
(c) Computer Advance Data  
(d) None of these