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

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) Incandescene
   (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