

Roll No.

97678

**BCA 5th Semester (New)
Examination–November, 2014**

COMPUTER GRAPHICS

Paper : BCA-302

Time : 3 hours

Max. Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt **five** questions. Question No. 1 is **compulsory**. Select **one** question from each unit.

1. Explain the following : 16

- (i) Application areas of computer graphics
- (ii) The viewing pipeline in 2-D viewing
- (iii) Bezier Curve
- (iv) The viewing pipeline in 3-D viewing

UNIT - I

2. (i) What do you mean by Random Scan and Raster Scan Systems. Also differentiate between them. 8

(ii) Give a brief idea about color CRT Monitors. 8

3. (i) What do you mean by Boundary Fill and Flood fill algorithm ? Also differentiate between them. 8

(ii) Explain Bresenham's Circle algorithm in detail. 8

UNIT - II

4. What do you mean by 2D Geometric Transformations ? Also explain :

(i) Translation

(ii) Rotation

(iii) Scaling

(iv) Reflection and Shear Transformations.

16

5. (i) Give a brief idea about window to view port coordinate transformations. 8

(ii) What is clipping ? Explain the Sutherland Hodgeman Polygon clipping algorithm in detail. 8

UNIT - III

6. Explain the following : 16

(i) Quadric Surfaces

(ii) B-Spline Curves

(iii) Hermite Curve

7. Explain in detail the basic illumination models. 16

UNIT - IV

8. Describe the following :

(a) Composite Transformations in 3D
geometric Transformations. 8

(b) Reflection and shear Transformations in
3-D geometric Transformations. 8

9. Write short notes on :

(i) Viewing Coordinates

(ii) General Projection Transform 16

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B.C.A. 5th Semester (New)
Examination- November, 2016
Computer Graphics
Paper-BCA-302

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Note : Attempt **five** questions. Q. No. 1 is **compulsory**. Select **one** question from each unit. All questions carry equal marks.

1. Explain the following : [4×4 = 16]

- (a) Flood fill algorithm
- (b) Cyrus-Beck line clipping algorithm
- (c) Hermite Curve
- (d) 3D viewing

Unit-I

2. Give a complete description about output devices and interactive input devices. [16]

3. (a) Give a brief idea about Bresenham's line algorithm. [8]

- (b) What do you mean by Trigonometric method of defining an ellipse ? [8]
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Unit-II

4. Explain the following : [16]

- (a) Reflection and shear transformations in 2-D geometric transforms.
- (b) Composite transformations in 2-D geometric transforms.

5. Describe the following : [16]

- (a) Midpoint sub-division method
- (b) Cohen-Sutherland algorithms

Unit-III

6. Describe the following : [16]

- (a) Polygon surfaces
- (b) Polygon rendering methods

7. What do you mean by basic illumination models ? Explain in detail. [16]

Unit-IV

8. What do you mean by 3D geometric transformations ? Also explain the following: [16]

(a) Translation

(b) Rotation

(c) Scaling

(d) Reflection and Shear transformations

9. Describe the following : [16]

(a) Viewing coordinates

(b) View volume.

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BCA 5th Semester (New)
Examination – November, 2017

COMPUTER GRAPHICS

Paper : BCA-302

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, by selecting *one* Question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Explain the following : $4 \times 4 = 16$
- (i) Application area of Computer Graphics
 - (ii) Window to view port coordinate Transformation
 - (iii) Hermite Curve
 - (iv) Viewing Pipeline

UNIT – I

2. (i) What do you mean by Raster Scan and Random Scan Systems ? Explain. 8

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(ii) Give a complete description about Beam penetration and shadow mask method. 8

3. (i) What do you mean by Interactive Input Devices ? Explain. 8

(ii) Explain Bresenham's Line Algorithm in detail. 8

UNIT – II

4. What do you mean by 2-D Geometric Transformations ? Explain in detail. 16

5. Explain the following : 8 + 8 = 16

(i) Sutherland Hodgeman Polygon Clipping Algorithm

(ii) Cyrus backline clipping Algorithm.

UNIT – III

6. Describe : 8 + 8 = 16

(i) Polygon Rendering Methods.

(ii) Bezier and B-spline curves.

7. Explain in detail about 3-D object representation. 16

UNIT – IV

8. What do you mean by 3-D Geometric Transformations ? Also explain the following : 8 + 8 = 16

(i) Composite Transformations

(ii) Shear Transformation

9. Write short notes on : 8 + 8 = 16

(i) Viewing Coordinates

(ii) General Projection Transform

(b) What is meant by viewing pipeline ? Illustrate. 8

9. Explain the following :

(a) Composite Transformations 8

(b) 3D Shearing 8

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BCA 5th Semester (New)

Examination – November, 2018

COMPUTER GRAPHICS

Paper : BCA-302

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is **compulsory**. Attempt **four** questions by selecting **one** question from each Unit. All questions carry equal marks.

1. (a) What is interactive computer graphics ? State its relevance. $2 \times 8 = 16$

(b) What is random scan system ?

(c) Why Bresenham's line algorithm is preferred over DDA-line algorithm ?

(d) What is meant by coordinate systems transformation ?

(e) What is quadric surface ?

- (f) What are viewing coordinates ? Illustrate.
- (g) What is Cyrus-beck line clipping algorithm ?
- (h) What is flickering ? What causes flickering ?

UNIT – I

2. (a) What are raster-scan systems ? how do these work ? Illustrate. 7
- (b) What is scan conversion ? What steps are required to plot a line whose slope is between 0 and 45° using Bresenham's method ? Indicate which raster locations would be chosen by Bresenham's algorithm when scan-converting a line from screen coordinate (2,3) to screen coordinate (7,12). 9
3. (a) What are plasma displays ? How do these work ? Illustrate. 6
- (b) What is flood-Fill algorithm ? What is its relevance ? Illustrate. 5
- (c) What is mid-point circle algorithm ? How does it work ? Illustrate. 5

UNIT – II

4. (a) What is 2D composite transformation ? Illustrate through a suitable example. 6

- (b) What is 2D viewing transformation ? Find the normalization transformation that maps a window whose lower left corner is at (1,2) and upper right corner is at (5,8) onto. 10
- (i) A viewport that is the entire normalized device screen and
- (ii) A viewport that has lower left corner at (0,0) and upper right corner $\left(\frac{1}{2}, \frac{1}{2}\right)$

5. Explain the following :

- (a) Cohen-Sutherland line-clipping algorithm 8
- (b) Sutherland-Hodgeman polygon clipping algorithm 8

UNIT – III

6. (a) What are polygon-rendering methods ? Which method is most popular ? Justify your answer. 8
- (b) What are Bezier surface ? How are these represented ? Illustrate their relevance in graphics. 8

7. Explain the following :

- (a) Hermite Curve 8
- (b) Basic Illumination Models 8

UNIT – IV

8. (a) What is general projection transform ? How is it significant ? Illustrate. 8