24253

B.Tech. 5th Semester (CSE) Examination,

December–2015

COMPUTER GRAPHICS

Paper–CSE–303–F

Time allowed : 3 hours] *[Maximum marks : 100*

Before ensuring the question, 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 any **five** questions. **Q. No. 1 is compulsory.** Select **one** question from each unit.*

1. (a) What is the difference between random scan and raster scan display.

(b) Explain view port and clipping.

(c) Explain the following with example : Translation, scaling.

(d) What are the various operations that can be applied on image.

(e) Differentiate between uniform B-Spline and non uniform B-Spline.

Unit–A

2. (a) What is computer graphics ? Indicate the importance and application area of computer graphics.

   (b) Explain DDA Line drawing algorithm.

3. (a) How Bresenhman's algorithms can be used for generating circle ? Explain.

   (b) Write and explain boundary filled algorithm.

Unit–B

4. Describe the transformation used in magnification and reduction with respect to origin. Find the new coordinates of the triangle A (0, 0), B (1, 1), C (5, 2) after it has been
   (a) magnified to twice its size and
   (b) reduce to half its size

5. (a) Write and explain Sutherland-Cohen algorithms for polygon clipping ?

   (b) Perform a 45 degree rotation of a triangle A (0, 0), B (1, 1), C (5, 2) About origin.

Unit–C

6. What do you mean by projection ? Describe different types of projection with examples. What are the various projection anomalies ?

7. (a) What is the importance of removal of 'Hidden Surface' ? Define Z-buffer algorithm for same.

   (b) Describe area sub division algorithms for hidden surface removal.

Unit–D

8. Where has the term "spline" originated from ? Compare B-spline curve and Bezier curve. Obtain expression for Bezier curve and B-spline curve.

9. Explain Gouraud Shading model and Phong shading model.

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B. Tech 5th Semester (CSE)

Examination – December, 2016

COMPUTER GRAPHICS

Paper : CSE-303-F

Time : Three Hours] *[Maximum Marks : 100*

Before answering the question, 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. Question No. 1 is ***compulsory***. Select one question from each Unit.

1. (a) Define ambient, diffuse reflection and specular reflection.

(b) What is the difference between random scan and raster scan display ?

(c) Explain the following with example: Scaling, reflection.

(d) What is the importance of removal of 'Hidden Surface ?

(e) Explain view port and clipping.

UNIT – I

2. (a) In what way interactive graphics differ from passive graphic ? Enumerate some application area of interactive graphics system.

(b) Explain midpoint circle drawing algorithm.

3. (a) Write and explain the boundary fill algorithms.

(b) Explain Bresenham's line drawing algorithm.

UNIT – II

4. Describe the transformation used in magnification and reduction with respect to origin. find the new coordinates of the triangle A (0, 0). B(1, 1), C(5, 2) after it has been (a) magnified to twice its size and (b) reduce to half its size.

5. (a) Explain Cyrus Beck line clipping algorithm.

(b) Write and explain Sutherland-Cohen algorithms for polygon clipping ?

UNIT – III

6. (a) Explain Z-buffer algorithm.

(b) Describe scale line algorithms for hidden surface removal.

7. (a) Explain the following with example: Translation, scaling, Rotation and composite transformation.

(b) What do you mean by projection ? Explain different types of projection.

UNIT – IV

8. (a) Differentiate between uniform B-Spline and non uniform B-Spline with suitable examples.

(b) what is Bezier curve ? describe various property of Bezier curve.

9. (a) What is an image ? How quality of an image can be improved with filtering ?

(b) Define the term shading ? Differentiate between Gouraud Shading model and phong shading model.

B.Tech. 5th Semester (CS & IT) F-Scheme
Examination, December–2017
COMPUTER GRAPHICS
Paper–CSE-303-F

Time allowed : 3 hours] *[Maximum marks : 100*

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

1. Explain the following : 4×5=20

(a) Applications of computer graphics.

(b) Window to viewport mapping.

(c) Types of projections.

(d) Coefficient of reflection and halfway vector.

Section–A

2. (a) Write the step required to plot a line whose slope is between 0° and 45° using the slope-intercept equation. 10

(b) Indicate which raster location would be chosen by Bresenham's algorithm when scan-converting a line from pixel coordinate (1, 1) to pixel coordinate (8,5). 10

3. Explain the architecture of Raster Scan Display. Give the logical organization of a Video Controller and explain its importance in Raster Scan display. 20

Section–B

4. (a) Perform a 60° rotation of triangle A(0,0), B(1,1), C(5,2)

(i) About the origin and

(ii) About P(–2,–2). 10

(b) Write the general form of a shearing matrix with respect to a fixed point P(h,k). 10

5. Contrast the efficiency of clipping between Sutherland-Cohen and Mid-point algorithm. Describe Sutherland-Hodgeman algorithm for polygon clipping. Explain why this algorithm works for convex polygons. 20

Section–C

6. (a) Write 3D transformation matrix to find reflection of a point P (15, 25, 35) about plane z = 0. 10

(b) What is oblique projection ? Provide some examples of oblique projection. 10

7. Write notes on : 20

(a) Z-buffer algorithm

(b) Geometric projections.

Section–D

8. (a) Explain Bezier method of curve drawing. 10

(b) Describe methods of polygon shading. 10

9. Write notes on : 20

(a) Bezier curve

(b) B-spline curve

(c) Fractals

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B.Tech. 5th Semester (F) Scheme (CS & IT)

Examination, December–2018

COMPUTER GRAPHICS

Paper–CSE -303-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note** : Attempt 5 questions selecting one question from each section. **Question No. 1 is compulsory.

1. (a) Explain points and lines by giving a suitable example. 5

   (b) Write short note on window and viewport. 5

   (c) What are various operations that can be applied on image. 5

   (d) What is the importance of hidden surface removal ? 5

Section-A

2. Explain with diagram the display processor for a random and vector scan display device. 20

3. (a) Explain Bresenham's line drawing algorithm. 10

   (b) Explain circle drawing algorithm using polar co-ordinates. 10

Section-B

4. (a) Explain Cyrus Beck line clipping algorithm. 10

   (b) Write and explain 4-bit code algorithm for clipping line. 10

5. Explain two dimensional transformation matrix for translation, scaling and rotation. 20

Section-C

6. What do you mean by projection ? Describe different types of projection with examples. Also explain what are various projection anomalies. 20

7. (a) Define hidden surface removal. Explain z-buffer algorithm for hidden surface removal. 10

   (b) Describe scan-line algorithm for hidden surface removal. 10

Section-D

8. (a) Define the term shading. Explain Gouraud shading and phong shading model. 10

   (b) What is image? Also explain image filtering. 10

9. (a) What is bezier curve? Describe various properties of bezier curve. 10

   (b) Discuss interpolation method for curve generation. Also discuss about parametric representation of surface. 10