COA 502 **Reg.No. ……**

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2012
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs **Max. Marks: 120**

PART – A

Note: Answer any 15 questions from the following: 15x2=30

1. a) Write two advantages of raster graphics.
b) What is rasterization?
c) Write the nested loop C statements for filling rectangle.
d) What is Clipping?
e) What do you mean by scan conversion?
f) Write a note on pen style.
g) What do you mean by homogenous coordinate system?
h) What are the four inequalities satisfied by a point lying inside the clip rectangle.
i) What is viewport?
j) Differentiate between flood fill and boundary fill technique.
k) Write 3D scaling matrix.
l) Define multimedia.
m) Define the terms, sound and frequency.
n) What is quantization?
o) Give any two examples for representation medium.
p) What are ADC and DAC?
q) What is the difference between pits and lands?
r) Define data stream. Give one example of a data stream.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain the architecture of raster display with a neat diagram.
b. Derive and write midpoint line generation algorithm. **(7+8)**

3. a. Describe the conceptual framework for an interactive graphics system in brief.
b. Explain midpoint circle algorithm.
c. Write a note on pattern filling. **(6+6+3)**

4. a. Write and explain DDA line generation algorithm.
b. Write a note on replicating pixels to generate thick primitives.
c. Explain 8-way symmetry of a circle. **(7+5+3)**

UNIT – II

5. a. Prove that successive 2D rotations are additive and successive scaling are multiplicative.
b. Explain composition of 3D transformation with respect to rotation. **(8+7)**

6. a. Explain Sutherland – Hodgeman polygon clipping algorithm.
b. Consider a rectangle consists of A(50, 50), B(100, 100), C(150, 100), & D (120, 50), rotate it by 45° about A (50, 50). Write the coordinates of the new points. **(8+7)**

7. a. Write 3D matrix for rotation about all 3 axes and 3D matrix for translation using homogenious coordinate system.
b . Write a note on window to viewport transformation. **(8+7)**

UNIT – III

8. a. Define multimedia. What are the properties of multimedia systems?
b. Explain various steps followed in image recognition process.
c. Distinguish between Iframes and Pframes used in MPEG. **(7+6+2)**

9. a. Write a note on MIDI messages and MIDI reception modes.
b. Explain CD-MO with its areas.
c. Write a note on sampling. **(7+5+3)**

10. a. Explain briefly JPEG compression technique.
b. Write a note on image transmission.
c. Explain the limitations of CD-ROM technology. **(6+6+3)**

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CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2013
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs Max. Marks: 120

PART – A

1. Answer any 15 questions from the following: 15x2=30

a. What do you mean by scan conversion?

b. Write any two advantages of raster graphics.

c. Write the transformation matrix to rotate a point by an angle of θ in the clockwise direction.

d. Explain the problem of sliver while filling polygons briefly.

e. Write the nested loop statement for filling rectangle.

f. Write the standard equation for ellipse. Specify the significance of variables in it.

g. Differentiate between boundary fill and flood fill technique.

h. What is meant by homogeneous co-ordinate system?

i. List the drawbacks of DDA algorithm.

j. Write the 3D scaling matrix.

k. Write two methods of pattern filling.

l. What are the advantages of digital CD-DA technology?

m. Define data streams. Give examples.

n. Expand MIDI and MPEG.

o. Define the terms frequency and sound.

p. List the image recognition steps.

q. What is ADC and DAC?

r. How data is written to magneto-optical disk.

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a. Describe the conceptual framework for an interactive graphics system.
b. Explain 8 way symmetry of a circle.
c. Write a note on replicating pixels to generate thick primitives. **(6+4+5)**

3. a. Derive and write the midpoint line generation algorithm.
b. Explain the moving pen method for drawing thick primitives. **(10+5)**

4. a. Explain the DDA line generation algorithm.

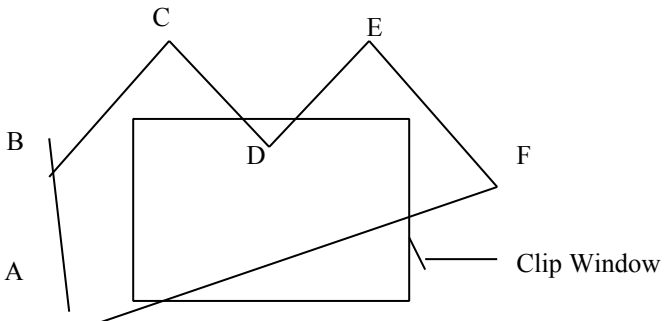
b. Explain vector graphic system. **(8+7)**

UNIT – II

5. a. Write the 3D matrix for rotation about all 3 axes and 3D matrix for translation using homogeneous co-ordinate system.
b. Describe window to view port transformation. **(8+7)**

6. a. Explain Cohen Sutherland line clipping algorithm.
b. Prove that successive 2D rotations are additive and successive scaling are multiplicative. **(8+7)**

7. a. Scale a polygon with co-ordinates A(3, 6) B(7, 8) and C(5, 4) by 3 units in X direction and 2 units in Y direction.
b. For a polygon and clipping window shown below give the list of vertices after each boundary clipping.



c. Derive the matrix for 2D rotation about the origin. **(6+4+5)**

UNIT – III

8. a. Write a note on image transmission.
b. Explain the components of MIDI synthesizer.
c. Write notes on discrete and continuous media. **(6+6+3)**

9. a. Explain briefly JPEG compression technique.
b. Write notes on a) captured image format
b) stored image format
c. Explain CD-ROM techniques. **(6+4+5)**

10. a. Distinguish between Iframes and Pframes used in MPEG.
b. Define multimedia. What are the properties of multimedia system?
c. Explain dithering. **(3+7+5)**

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COA 502 Reg.No. .....

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2014
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs Max. Marks: 120

PART – A

1. Answer any 15 questions from the following: 15x2=30

a. What is rasterization?

b. What is meant by uniform scaling?

c. Differentiate between 2 types of polygon filling techniques.

d. What is clipping?

e. What is rigid body transformation? Give an example.

f. What is ADC and DAC?

g. Give the 2D shear transformation matrices with respect to homogenous co-ordinate system.

h. How are sound waves generated?

i. What is viewport?

j. What is pen style technique?

k. Differentiate between two types of generating characters.

l. State the four inequalities satisfied by a point lying inside clip rectangle.

m. Expand JPEG and GIF.

n. What is quantization?

o. Define multimedia.

p. Define sampling rate and frequency.

q. State the difference between pits and lands.

r. Give any two examples of representation medium.

PART – B

Answer any TWO questions from each unit:

UNIT – I

2. a. Explain midpoint circle algorithm.
b. Explain the conceptual framework for interactive graphics system. **(8+7)**

3. a. Explain the architecture of raster display with a neat diagram.
b. Explain mid-point line algorithm. **(7+8)**

4. a. Write a note on replicating pixel to generate thick primitives.

b. Explain mid-point ellipse algorithm. **(5+10)**

UNIT – II

5. a. Explain the sequence of transformations for rotating an object about arbitrary point in 2D transformation.
b. Write a note on window to viewport transformation. **(8+7)**

6. a. Explain Sutherland-Hodgeman polygon clipping algorithm.
b. Explain composition of 3D transformation with respect to rotation. **(8+7)**

7. a. Prove that two successive scalings are commutative.
b. Explain the homogenous co-ordinates for 2D transformation.
c. Consider a rectangle consisting of A (50, 50), B (100, 100), C (150, 100) & D (120, 50). Rotate it by 45^o about A (50, 50). Write the co-ordinates of the new points. **(5+5+5)**

UNIT – III

8. a. Write CD-MO with its areas.
b. Explain the limitations of CD-ROM technology.
c. List and explain the different classification of medium. **(5+3+7)**

9. a. Explain the data stream characteristics for continuous media.
b. Write a note on MIDI message and MIDI reception modes. **(8+7)**

10. a. Explain the various steps followed in image recognition process.
b. Explain asynchromous, synchronous and isosynchronous transmission modes.
c. Write notes on representation values and representation spaces. **(6+6+3)**

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COA 502 **Reg.No. ……**

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION OCTOBER 2015
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs **Max. Marks: 120**

PART – A

1. Answer any 15 questions from the following: 15x2=30

a. What are the drawbacks of raster system compared to vector system?

b. What is rasterization?

c. Mention any two techniques used for pattern filling.

d. What is 8-way symmetry of a circle?

e. Write a note on line-style.

f. Write the nested loop statements for filling rectangle.

g. Give 2D rotation matrix in homogeneous coordinates.

h. Define rigid body transformations.

i. What is sliver?

j. What is clipping?

k. What is meant by differential scaling?

l. Define multimedia.

m. Expand JPEG and GIF.

n. What is quantization?

o. What is ADC and DAC?

p. What are the four reception modes used to tune a MIDI devices?

q. Differentiate between lands and pits.

r. Write the advantage and disadvantage of CD-DA technology.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Briefly explain vector system architecture.
b. Explain the mid-point technique used for drawing the circle. **(7+8)**

3. a. Write a note on i) Replicating pixels ii) The moving pen.
b. Explain the mid-point technique used for drawing the line. **(7+8)**

4. a. Explain i) Flood filling ii) Boundary filling.
b. With the help of a diagram, explain the conceptual framework for interactive graphics. **(7+8)**

UNIT – II

5. a. Explain Cohen Sutherland line clipping algorithm.
b. Write the matrices for translation, scaling and rotation about 3-axes in 3D homogeneous co-ordinate system. **(8+7)**

6. a. Scale a polygon having endpoints A(15,20), B(50,20), C(50,60) and D(15,60) on a 2D Space by 1.5 units along x-axis and 2 units along y-axis.
b. Explain Sutherland Hodgman Polygon clipping technique. **(8+7)**

7. a. Show that two successive translations are additive and successive scaling are multiplicative.
b. Explain the sequence of transformations for rotating an object about arbitrary point in 2D transformations. **(8+7)**

UNIT – III

8. a. List and explain main properties of multimedia system.
b. Explain data stream characteristics for continuous media in detail. **(6+9)**

9. a. Explain different types of media.

b. List and explain various image recognition steps. **(6+9)**

10. a. Explain commonly used components of a MIDI synthesizer.
b. Explain the data format of CDROM Mode1 and Mode2.
c. Briefly explain JPEG compression technique. **(5+5+5)**

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COA 502 Reg. No. .....

CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2016
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs. Max. Marks: 100

PART – A

1. Answer any ELEVEN questions from the following: 11×2=22

a. What is refresh buffer with reference to display systems?
b. What do you mean by scan conversion?
c. Expand a) PHIGS b) SRGP
d. Writ any two the drawbacks of DDA line drawing algorithm?
e. What is meant by eight way symmetry of a circle?
f. Write standard form for equation of circle.
g. What do you mean by clip window?
h. Differentiate bitmap method with Stroke Method.
i. Write nested 'C' statements for filling Rectangle.
j. What is meant by scaling and shearing?
k. Write the need for homogeneous co-ordinate.
l. Explain the problem of sliver while filling a polygon.
m. Define affine and rigid body transformation.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain architecture of Raster scan display system with a neat diagram.
   b. Write and explain midpoint circle algorithm. (7+6)

3. a. Describe the conceptual framework for interactive graphics system with suitable diagram.
   b. Write ellipse generating algorithm. (7+6)

4. a. Write a note on a) filling rectangle b) Replicating pixels
   b. Derive and explain DDA line drawing algorithm. (7+6)

UNIT – II

5. a. Explain Cohen Sutherland line clipping algorithm.
   b. Translate the polygon with co-ordinates A(9, 12) B(5,7) C(5, -17) by -3 units in x direction and 2 units in y direction. (7+6)

6. a. Write a Note on Window to Viewport Transformation.
   b. Prove that successive rotations are additive.
   c. Write 2D translation and Scaling Matrix for homogeneous co-ordinates. **(6+4+3)**

7. a. Write matrix for translation, rotation, scaling about 3 axis in 3D homogeneous co-ordinate system.
   b. Explain Sutherland-Hodgeman Polygon Clipping algorithm. **(7+6)**

UNIT – III

8. a. Write a Note on MIDI Devices.
   b. Explain Image Recognition Steps. **(7+6)**

9. a. Write a note on Image Transmission.
   b. Explain data Stream characteristics of continuous media. **(6+7)**

10. a. Explain MPEG Compression Technique.
    b. Write a Note on sessions of write once CD. **(6+7)**

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CREDIT BASED FIFTH SEMESTER B.C.A. DEGREE EXAMINATION
OCTOBER 2016
B.C.A
COMPUTER GRAPHICS AND MULTIMEDIA

Time: 3 Hrs. Max. Marks: 120

PART – A

1. Answer any FIFTEEN questions from the following: 15×2=30

a. What is refresh buffer with reference to display systems?
b. What do you mean by scan conversion?
c. Expand a) PHIGS b) SRGP
d. Writ any two the drawbacks of DDA line drawing algorithm?
e. What is meant by eight way symmetry of a circle?
f. Write standard form for equation of circle.
g. What do you mean by clip window?
h. Differentiate bitmap method with Stroke Method.
i. Write nested 'C' statements for filling Rectangle.
j. What is meant by scaling and shearing?
k. Write the need for homogeneous co-ordinate.
l. Explain the problem of sliver while filling a polygon.
m. Define affine and rigid body transformation.
n. Define update dynamics.
o. Define multimedia in terms of their properties.
p. What do you mean by compression?
q. Write the example for optical storage media.
r. Expand MIDI and MPEG.

PART – B

Answer any TWO full questions from each unit:

UNIT – I

2. a. Explain architecture of Raster scan display system with a neat diagram.
   b. Write and explain midpoint circle algorithm. (8+7)

3. a. Describe the conceptual framework for interactive graphics system with suitable diagram.
   b. Write ellipse generating algorithm. (8+7)

4. a. Write a note on a) filling rectangle b) Replicating pixels
   b. Derive and explain DDA line drawing algorithm. (8+7)

UNIT – II

5. a. Explain Cohen Sutherland line clipping algorithm.
   b. Translate the polygon with co-ordinates A(9, 12) B(5,7) C(5, -17) by -3 units in x direction and 2 units in y direction. **(8+7)**

6. a. Write a Note on Window to Viewport Transformation.
   b. Prove that successive rotations are additive.
   c. Write 2D translation and Scaling Matrix for homogeneous co-ordinates. **(7+5+3)**

7. a. Write matrix for translation, rotation, scaling about 3 axis in 3D homogeneous co-ordinate system.
   b. Explain Sutherland-Hodgeman Polygon Clipping algorithm. **(8+7)**

UNIT – III

8. a. Write a Note on MIDI Devices.
   b. Explain Image Recognition Steps. **(8+7)**

9. a. Write a note on Image Transmission.
   b. Explain data Stream characteristics of continuous media. **(7+8)**

10. a. Explain MPEG Compression Technique.
    b. Write a Note on sessions of write once CD. **(7+8)**

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