tal No. of Questions: 05

Total No. of Printed Pages: 02

Roll No. _____

BTCS503

V Semester Examination, December 2019

B. Tech. / B. Tech. + MBA / B. Tech. + M. Tech.

[CCE/CSE/CSE-CC/CSE-CYFS/ IT]

Computer Graphics and Multimedia

Choice Based Credit System (CBCS)

me: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

(1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks each and part 'C' carries 6 marks.
(2) From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.
(3) Draw neat diagrams, wherever necessary.
(4) Assume suitable data, wherever necessary.

Q.1(A) Difference between beam penetration and shadow mask method of display system. 03

(B) Difference between bit map and pix map in detail. 03

(C) Compare the raster scan and random scan system. In 24 bit plane color frame buffer with a 10 bit wide lookup table for each three color, how many colors are possible at given instance? How many total colors are possible? 06

OR

What is the purpose of a display processor in a computer system? Give the architecture of a raster graphics system with a display processor.

'A) Explain Bezier curve. 03

B) What do you mean by aliasing and antialiasing? Discuss one method of antialiasing. 03

C) Compare simple DDA line drawing algorithm with Bresenham's line algorithm. Does point generated by both algorithm are same? Justify your answer. 06

OR

Explain Bresenham's algorithm for generating a circle and use it to find the pixels which put in one octant of the circle with center origin and radius 6 units. If circle is shifted to center (1, 2) what will be the new locations of these pixels.

Contd....

Q.3(A) Describe the transformation used in magnification and reduction with respect to origin.

(B) Explain Sutherland – Hodgeman polygon clipping algorithm with example.

(C) Use the Cohen Sutherland line algorithm to clip two lines $P_1(40,15)$-P_2 and $P_3(70,20)$-$P_4(100,10)$ against a window A(50,10),B(80,10),C(80,40), D(50,40).

OR

Derive equation for window to viewport transformation.

Q.4(A) How are back faces detected and why do we need to remove them?

(B) Difference between Phong shading and Gouraud shading models.

(C) Explain YIQ, HSV and RGB color model.

OR

Find the co-ordinates of a unit cube when it is projected along a $M = i + j + k$ on to a plane defend by point P (1, 1, 1) and a normal $N = 3j + 4k$.

Q.5(A) Write short notes:

a) Halfman coding

b) LZW coding for text compression

c) MIDI data

(B) Discuss the various components of Multimedia system.

(C) Draw and explain the Multimedia workstation architecture.

OR

What are the advantage and disadvantage of lossless compression? Describe and contrast these with lossy compression schemes.

XXXXXX

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BTCS503

V Semester Examination April-May, 2019

B.Tech./B.Tech+M.B.A/B.Tech+M.Tech [CSE / CCE / IT]

Computer Graphics and Multimedia

Choice Based Credit System (CBCS)

Time: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

Note: (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 6 marks.

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(3) Draw the neat diagram wherever necessary.

(4) Assume suitable data wherever necessary.

1.(A) What are the difference between raster scan and random scan system? 03

(B) What do you mean by antialiasing? Explain the methods of reducing antialiasing. 03

(C) A frame buffer has a size 1024 x 1024 with 12 bits per pixel. Compute the time required to load it, if transferred rate 12 bits per seconds. 06

OR

Define the terms bitmap, persistence, resolution, aspect ratio, flickering and refreshing in computer graphics.

2.(A) Explain Bezier curves. 03

(B) Explain Boundary fill algorithms with example. 03

(C) Explain the Bresenham's line drawing algorithm with example. 06

OR

Explain MidPoint algorithm of Circle drawing and plot all the points in the circle having radius r=8

.(A) Prove that 2 translation are additive and 2 scaling are multiplication. 03

(B) Explain how to obtain transformation matrix for 2D rotation about arbitrary point. 03

(C) Use the Cohen Sutherland line algorithm to clip two lines having coordinates P_1(40,15) - P_2(75,45) and P_3(70,20) - P_4(100,10) against a window having coordinates A(50,10), B(80,10), C(80,40) and D(50,40). 06

OR

Explain with example how Sultherland -Hodgen algorithm is used for Polygon clipping.

Contd...

Q.4.(A) Define the terms Translation, Rotation and Scaling in 3D with its matrices.

(B) Explain oblique projection with examples.

(C) Explain YIQ and HSV color model.

OR

Describe phong shading model. What is more accurate then gouraud shading mode

Q.5.(A) Write short notes on any one of the following:

a. Digital audio

b. Sound cards

c. Video color spaces

(B) What are the sound file formats of multimedia?

(C) Draw and explain the multimedia workstation architecture.

OR

Discuss the main steps of JPEG compression. What is JEPG file structure?

XXXXXX

Total No. of Questions: 05

Total No. of P...

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BTCS503

V Semester Examination, November 2018

B.Tech. / B.Tech. + M.Tech. / B.Tech. + MBA [CCE / CSE / IT]

Computer Graphics and Multimedia

Choice Based Credit System (CBCS)

Duration: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

Note: (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 6 marks.
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(3) Draw neat diagram, wherever necessary.
(4) Assume suitable data, wherever necessary.

Q.1.(A) What are the major application areas of computer graphics? 03

(B) Explain input and output primitives of computer graphics. 03

(C) Explain the working of CRT in computer graphics and also explain Raster scan system and Random scan system in CRT. 06

OR

Explain OpenGL with example and also explain the elements which are required to create picture in computer graphics.

Q.2.(A) Define Line Drawing Method with example. 03

(B) Explain Bezier curve using any example. 03

(C) Plot a circle by Bresenham's algorithm whose radius is 10 and center is (0,0) 06

OR

Explain DDA Line Drawing algorithm with numerical example.

Q.3.(A) Explain the concept of Homogenous co-ordinates using example. 03

(B) Explain composite transformation. 03

(C) Explain parallel and perspective projection in detail. 06

OR

Use Cohen Sutherland algorithm to clip line P1 (70, 20) and P2 (100, 10) against a window lower left hand corner (50, 10) and upper right hand corner (80, 40).

Contd.....

Q.4.(A) Explain surface detection method.

(B) Define Area-subdivision method with example.

(C) Define Z-Buffer Algorithm in Detail.

OR

For the Given matrix

2 0 1 0

1 3 0 0

4 0 1 0

0 3 6 1

Q.5.(A) Define: JPEG, RTF, TIFF

(B) Compare Lossy and Lossless compression techniques.

(C) Explain Text compression techniques in detail. What are the principal of animation explain 3D animation.

OR

Define Multimedia architecture along with multimedia database.

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