KUMARAGURU
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B.E DEGREE EXAMINATIONS: MAY 2016

(Regulation 2014)

Third Semester

COMPUTER SCIENCE AND ENGINEERING

U14CST303: Computer Graphics

COURSE OUTCOMES

CO1: Describe how graphics Input and Output devices work.

CO2: Describe about graphics primitives and work with coordinate spaces, coordinate conversion, and transformations of graphics objects.

CO3: Explain 3D geometrical transformations.

CO4: Explain various 3D projections and current models for surfaces.

CO5: Make use of the color and transformation techniques for various gaming applications.

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The brightness of a display in CRT is controlled by varying voltage on _____   CO1 [K_2]

    a) Control Grid   b) Cathode Coil

    c) Focusing Anode   d) Deflection Coil

2. Consider the following statements: CO2 [K_2]

    1. In active graphics the user has no control over the picture.

    2. The picture definition is stored in a charge buffer.

    3. The slope is positive and m<1, the next pixel position at x increment at sample distance.

    4. Bresenham's algorithm avoid square root by pixel separation distance.

    Which of these statements are correct?

    a) 3,4   b) 2,4

    c) 1,4   d) 2,3

3. A random scan display is often called a _____   CO1 [K_1]

    a) Brighter display   b) Vector display

    c) Focusing display   d) Scanner display

4. Transformation includes_____ and _____   CO2 [K_2]

a)	Translation and Projection	b)	Shearing and Coloring
c)	Clipping and Rotation	d)	Rotation and Zooming

5. _____ are used in graphics applications to design curve and surface shapes.   CO3 [K$_2$]

a)	Layout	b)	Splines
c)	Convex hull	d)	Polygon

6. Consider the following three dimensional world to device coordinates transforming pipeline and arrange in sequence.   CO3 [K$_2$]

1. Viewing and projection transformations

2. Modeling coordinates

3. Workstation transformation

4. Projection coordinates

a)	3-1-4-2	b)	2-1-4-3
c)	3-2-1-4	d)	4-2-3-1

7. Torus can be generated by rotating a _____ about a specified axis.   CO4 [K$_2$]

a)	Parametric representation	b)	polygon
c)	Conic	d)	Cartesian representation

8. A) Assertion (A): Perspective projection is more realistic than parallel projection.   CO3 [K$_2$]

 B) Reason (R):   It cannot be used for exact measurement and exact shape of the object.

a)	A only true	b)	B only true
c)	Both are individually true but reason is not correct reason for assertion	d)	Both are false

9. When sound is included in the animation, it become_____   CO5 [K$_2$]

a)	Cartoon	b)	Vimation
c)	Video	d)	Flash

10. Match the following List I with List II.   CO5 [K$_2$]

List I	**List II**
A. FLAC	i. Video format
B. SVI	ii. Image format
C.PSD	iii. Animation format
D.SWF	iv. Audio format

	A	B	C	D
a)	iii	iv	i	ii

b)	iv	i	ii	iii
c)	iv	iii	ii	i
d)	i	iii	ii	iv

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. What is resolution in CRT screen?   CO1   [K_1]

12. Consider a line AB with A=(1,2) and B=(4,6). Apply DDA line drawing algorithm, and calculate the pixels along the line path.   CO2   [K_2]

13. Explain affine transformation.   CO2   [K_2]

14. Write the transformation sequence of pivot point rotation   CO2   [K_2]

15. Explain the three dimensional region codes   CO3   [K_2]

16. What is blending function in spline specification?   CO3   [K_1]

17. Write the B-spline blending functions.   CO4   [K_1]

18. Explain principal vanishing point   CO4   [K2]

19. Explain the computer graphics.   CO5   [K_2]

20. Illustrate the RGB chromaticity diagram.   CO5   [K_2]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. Illustrate the refresh CRT and explain its working principle.   CO1   [K_2]

22. Consider R be the window which has its lower left corner at (0,0) and upper right corner at (80,80) for each of the line segments, show whether it is visible, invisible or partially visible and find the intersection when the line is partially visible for the given window and finally draw the output.   CO2   [K_2]

i) (10,50) (70,70)

ii) (60,70) (90,100)

iii) (-20,50) (40, -50)

iv) (100, 50) (20, 90)

23. Explain three dimensional transformations and give example of each.   CO3   [K$_2$]

24. Explain various types of projection methods in computer graphics with suitable example.   CO4   [K$_2$]

25. i) What is the need of different types of color models in computer graphics? Justify with your answer?   (4)   CO5   [K$_2$]

    ii) Explain RGB and YIQ color models.   (10)   CO5   [K$_2$]

26. Explain the key frame systems and motion computer specification.   CO5   [K$_2$]

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