

Reg. No.

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**B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019**

Fifth Semester

**CS16504 – COMPUTER GRAPHICS***(Computer Science and Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**

Answer ALL questions

**PART A - (10 X 2 = 20 Marks)**

	<b>CO</b>	<b>RBT</b>
1. List the complexities of line drawing algorithms.	1	U
2. How pixel addressing is done?	1	U
3. Sketch a composite matrix for translation and scaling.	2	R
4. Differentiate pivot point rotation and general rotation.	2	U
5. Define the logic of showing a 3D object in a 2D plane.	2	AP
6. How do you decide the hidden surfaces of a 3D object?	2	AN
7. What is the coloring scheme behind the hard copy devices?	3	U
8. Give a method to assess the intensity of illumination.	3	U
9. Draw an example self-similar image.	4	AP
10. What is object averaging?	4	U

**PART B - (5 X16 = 80 Marks)**

11. (a) (i) Explain the working principle of legacy Graphics monitors.	(8)	1	U
(ii) Device a DDA algorithm with its worst- and best-case scenarios.	(8)	1	E
<b>(OR)</b>			
(b) (i) Generate a circle for radius 9 units with center at (5,5).	(8)	1	AP
(ii) Draw a line of slope $m < 1$ line with Bresenham's algorithm.	(8)	1	R

12. (a) Give a line clipping example of a line intersecting both top and left boundaries of the clipping window with Cohen-Sutherland line clipping algorithm. (16) 2 C

(OR)

- (b) (i) Explain the window to viewport mapping function. (8) 2 U  
(ii) Explain the X and Y axis reflections with suitable example. (8) 2 AP

13. (a) Draw a Bezier curve and explain the blending function and its properties. (16) 2 U

(OR)

- (b) (i) Describe the depth-buffer and A-buffer methods. (8) 2 U  
(ii) Explain about the 3D object representation schemes. (8) 2 U

14. (a) (i) Explain any four basic Illumination models. (8) 3 U  
(ii) Illustrate the RGB and CMY color models. (8) 3 AP

(OR)

- (b) (i) Explain the dithering technique and halftone approximation. (8) 3 U  
(ii) Draw the CIE chromaticity diagram and explain. (8) 3 AP

15. (a) Explain about fractals and its applications with the self-similarity function. (16) 4 U

(OR)

- (b) Demonstrate key frames and in-betweening of animation sequences with example. (16) 4 AP