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# Question Paper Code: 27174

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

#### Fifth Semester

### Computer Science and Engineering

# CS 6504 — COMPUTER GRAPHICS

(Regulations 2013)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A —  $(10 \times 2 = 20 \text{ marks})$ 

- 1. Compute the resolution of a 2 × 2 inch image that has 512 × 512 pixels.
- 2. Give the contents of the display file.
- 3. Derive the general form of scaling matrix about a fixed point  $(x_f, y_f)$ .
- 4. Write down the conditions for point clipping in window.
- 5. Represent the parametric representation of a cubic Bezier curve.
- 6. Define projection plane and centre of projection.
- 7. Define dithering. When does this occur?
- 8. Convert the given colour value to CMY colour mode where R=0.23~G=0.57 B = 0.11.
- 9. Give the basic principle of animation.
- 10. List the attributes of turtle in graphics.

# PART B -- (5 × 16 = 80 marks)

- 11. (a) (i) Define and Differentiate random scan and raster scan devices. (8)
  - (ii) Using Bresenhams circle drawing algorithm plot one quadrant of a circle of radius 7 pixels with origin as centre.

	(b)	(i)	How are event driven input devices handled by the hard Explain.	ware? (8)				
		Discuss the primitives used for filling.	(8)					
12.	(a)	(i)	Flip the given quadrilateral A(10.8) B(22,8) C(34,17) D(10,27) the origin and then zoom it to twice its size. Find the new pos of the quadrilateral.					
		(ii)	Derive the viewing transformation matrix.	(8)				
			Or					
	(b)	(i)		indow pping (8)				
4		(ii)	Explain the two dimensional viewing pipeline in detail.					
13.	(a)	(i)	Derive the parametric equation for a cubic Bezier curve.	(8)				
X.		( <b>ii</b> )	Compare and contrast orthographic, Axonometric and Ol projections.	blique (8)				
	129		Or					
ží.	<b>(b)</b>	(i)	Write down the Back face detection algorithm.	(8)				
18		(ii)	How will you perform three dimensional rotation about arbitrary axis in space?	(8)				
14.	(B)	Disc deta	euss on colour spectrum, colour concepts and colour mode il.  Or	els in (16)				
	(b)	Expl	lain the illumination models in detail.	(16)				
15.	(a)	(i)	Distinguish between raster animation and key frame animat detail.	68000 50				
		. (ii)	How will you generate grammar based model? Explain.	(8)				
			Or					
	(b)	Writ	te short notes on:					
	200	(i)	Ray tracing	(6)				
		(ii)	Koch curves	(5)				
		(iii)	Morphing.	(5)				
			98					