

Code No: 117BX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, November/December - 2017

COMPUTER GRAPHICS

(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Part - A

(25 Marks)

- 1.a) What are the hardware devices used for computer graphics? [2]
- b) What is aliasing and antialiasing? [3]
- c) What is covering (exterior clipping)? [2]
- d) Distinguish between uniform scaling and differential scaling? [3]
- e) What is Bezier Basis Function? [2]
- f) Differentiate between interpolation spline and approximation spline? [3]
- g) Classify the Visible Surface Detection Methods. [2]
- h) What are the Basic illumination Models. [3]
- i) Discuss about motion specifications. [2]
- j) What is raster animation? [3]

Part - B

(50 Marks)

- 2.a) Distinguish Raster and Random scan devices.
- b) List the input devices. Explain the functionalities of any one input device. [6+4]

OR

- 3.a) Illustrate the Bresenham line drawing algorithm, digitize the line with endpoints (20,10) and (30,18) and this has a slope of 0.8.
- b) Describe boundary fill algorithm? [6+4]

- 4.a) Rotate a triangle A(0,0) , B(2,2) , C(4,2) about the origin and about P(2, 2) by an angle of 45°
- b) Give a brief note on two dimensional viewing transformation pipeline? [5+5]

OR

- 5.a) Derive window to viewport coordinate transformation.
- b) Explain Cohen Sutherland and Cyrus-beck line Clipping algorithms. [4+6]

- 6. Explain in detail about B-Spline curves and surfaces? Derive parametric Bezier curve equation controlled by four points { (2,5,3), (3,-6,8), (1,-2,3), (-4,2,-2)}. [10]

OR

- 7.a) Explain the concept of parallel projections in 3D.
- b) Explain the 3D clipping algorithm for viewing volume. [5+5]

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- 8.a) Explain area subdivision and A-Buffer method?
b) Write short notes on BSP-tree methods?

[5+5]

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9. Explain polygon Rendering Methods. [10]

- 10.a) What are the different tricks used in computer graphics animation?
b) What are the animation functions follow the computer animation system?

[5+5]

OR

- 11.a) Give any four real time animation techniques?
b) Mention the salient features of key frame systems?

[4+6]

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