

Code No: 155AM**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year I Semester Examinations, January/February - 2023****COMPUTER GRAPHICS****(Common to CSE, IT, CSIT, CSE(AIML), CSE(DS))****Time: 3 Hours****Max. Marks: 75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) Explain applications for large screen displays. [2]
- b) Write a short note on video-display device. [3]
- c) What is viewing functions? [2]
- d) Explain the 2 D transformation matrix for Translation. [3]
- e) What is the role of parametric functions in curve generation? [2]
- f) Write an algorithm for the generation of B-spline? [3]
- g) Derive the transformation matrix for rotation about y-axis in 3D. [2]
- h) Derive the matrix form for the Translation operation in 3-D graphics. [3]
- i) Write about depth-sort algorithm. [2]
- j) What are the steps in design of animation sequence? [3]

PART – B**(50 Marks)**

- 2.a) What are the steps involved in DDA algorithm for line drawing.
 - b) Write a short note on boundary-fill algorithm. [5+5]
- OR**
- 3.a) Briefly explain about mid-point ellipse algorithms with example.
 - b) Discuss about raster-scan systems. [5+5]
- 4.a) Describe the Cohen-Sutherland algorithm.
 - b) What is reflection? Discuss with example? [5+5]
- OR**
- 5.a) Explain the stages in viewing pipeline in 2-D graphics.
 - b) Derive mathematically the transformation that rotates an object point 0° anti-clockwise about the origin. What the matrix representation for this rotation. [5+5]
- 6.a) Write a short note on Hermite curve.
 - b) Discuss about quadric surfaces. [5+5]
- OR**
- 7.a) Write a short note on Bezier curve.
 - b) Discuss about polygon rendering methods. [5+5]

- 8.a) Derive the matrix form for Rotation in 3-D graphics.
b) Explain about the approaches followed for clipping in 3-D space. [5+5]

OR

- 9.a) Briefly explain about 3-D composite transformations.
b) Write a short note on shear transformations in 3-D. [5+5]

- 10.a) Discuss about the graphical languages followed to achieve animation.
b) Explain in detail about depth-buffer algorithm. [5+5]

OR

- 11.a) Describe linear list notation of animation languages.
b) Write a short note on BSP-trees. [5+5]

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