

Roll No.

Total Pages : 3

4244/MJ

G-10/2051

COMPUTER GRAPHICS

Paper–CS-405-A

Semester–IV

Time allowed : 3 Hours] [Maximum Marks : 40

Note: The candidates are required to attempt two questions each from section A and section B carrying 6 marks each and the entire Section C consisting of 8 short answer type questions carrying 2 marks each is compulsory.

SECTION-A

1. What are the various graphics input devices? Explain their usage, characteristics and advantages in detail. 6
2. Discuss the Bresenham's circle drawing algorithm with example. 6

4244/MJ/485/W

[P.T.O.

3. Write the Cohen-Sutherland outcode algorithm. 6
4. Magnify the triangle P(0,0), Q(2,2) and R(0,4) to four times its size while keeping R(10,4) fixed. 6

SECTION-B

5. Derive the 3D transformation matrix for rotating and translating the polygon P1, P2 and P3 such that P1 coincides with origin and P1P2 with the positive Z axis. 6

Where, P1 = (0, 2, 4) P2 = (0, 4, 8) and P3 = (2, 1, 5).

6. What are composite transformations? Explain in detail. 6
7. Explain Painter's algorithm in detail. 6
8. Explain the concepts of Halftoning and Dithering in detail. 6

SECTION-C

9. (i) What does the acronym pixel stands for? What are the characteristics of a pixel?

4244/MJ/485/W

2

- (ii) What is the centre of projection in perspective projection.
- (iii) What are homogeneous coordinates?
- (iv) What is aspect ratio?
- (v) What do you mean by scan conversion?
- (vi) What are normalized device co-ordinates?
- (vii) What is a window and a view port?
- (viii) Write the transformation matrix for 2D rotation.

$$2 \times 8 = 16$$