

M-50/2051

COMPUTER GRAPHICS-221

(Semester-IV)

Time : Three Hours]

[Maximum Marks : 70

Note : Attempt *two* questions each from Section A and B carrying 10½ marks each and the entire Section C consisting of 14 short answer type questions carrying 2 marks each.

SECTION-A

- I. Describe Computer Graphics and its applications.
- II. Explain Bresenham's line drawing algorithm with its advantages and disadvantages.
- III. Magnify the triangle with vertices P(0, 0), Q(1, 1) and R(5, 2) to twice its size while keeping R(5, 2) fixed.
- IV. (a) Distinguish between random and raster scan display devices.
(b) How is the distance between a point and a line determined? Explain.

SECTION-B

- V. What is a projection? List and explain various types of projections.
- VI. Explain in detail the Phong shading model.
- VII. Explain the z-buffer algorithm for hidden surface removal.
- VIII. (a) Discuss Painter's algorithm.
(b) Explain Dithering.

SECTION-C

- IX. Attempt the following :
 - (a) Explain Virtual reality.
 - (b) What is 6-bit region code?
 - (c) What is viewing transformation?
 - (d) How can a view plane be specified?
 - (e) Differentiate window and viewport.
 - (f) Write a short note on Gouraud shading.
 - (g) What is the significance of aspect ratio?
 - (h) What do you mean by scan conversion?
 - (i) What is the basis of flood fill algorithm?
 - (j) What is the need for a graphics device driver?

- (k) What is the concept of refreshing in the CRTs?
 - (l) Explain the concept of homogeneous co-ordinate system.
 - (m) How is Diffuse reflection different from Specular reflection?
 - (n) What is the difference between rotation about origin and rotation about center?
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