

(i) Printed Pages: 3

Roll No. ....

(ii) Questions : 9

Sub. Code : 

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Exam. Code : 

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**M.Sc. (Information Technology) 3<sup>rd</sup> Semester**

**(1129)**

**COMPUTER GRAPHICS**

**Paper—MS : 39**

**Time Allowed : Three Hours]**

**[Maximum Marks : 80**

**Note :—** Candidate is required to attempt **five** questions in all including question no.1 (which is compulsory) and attempt remaining **four** questions by selecting **one** question from each Unit.

- I. (a) What is scan conversion ? 2
- (b) What is Output Primitive ? 2
- (c) What are the disadvantages of DDA algorithm ? 2
- (d) What are the various types of clipping ? Name them. 2
- (e) What is frame buffer ? 2

- (f) What are the various ways of producing colour displays with a CRT ? 2
- (g) What is viewing transformation ? 2
- (h) Define shading. 2

### UNIT—I

- II. (a) What is interactive graphical system ? Also discuss its usage. 8
- (b) Discuss the DDA line drawing algorithm with example. 8
- III. Explain the mid-point circle generation algorithm with example. 16

### UNIT—II

- IV. (a) Derive the transformation matrix to magnify the triangle with vertices  $A(0, 0)$ ,  $B(1, 2)$ ,  $C(3, 2)$  to twice its size so that the point  $C(3, 2)$  remains fixed. 8
- (b) Discuss the transformation of points and unit square. 8
- V. (a) Explain with an example the Liang-Barsky algorithm for line clipping. 8
- (b) Discuss window-to-viewport transformation. 8

### UNIT—III

- VI. (a) Explain animated algorithm for merge sort. 8
- (b) What is Open GL ? List and explain the use of various graphics primitives and functions available in Open GL related to color, light and animation. 8

- VII. (a) Discuss mouse programming in C/C++ with suitable example. 8
- (b) Explain animated algorithm for Towers of Hanoi. 8

#### UNIT—IV

- VIII. (a) Discuss the parametric cubic curves. 8
- (b) What is Bezier curve ? Define properties of Bezier curve. Explain the condition for smoothly joining two Bezier curve segments, 8
- IX. (a) Discuss Z-buffer algorithm with example. 8
- (b) How 3-D transformation is different from 2-D transformation ? Discuss. 8