

Total No. of Questions—12]

[Total No. of Printed Pages—4

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**[4757]-199**

**S.E. (IT) (Second Semester) EXAMINATION, 2015**

**COMPUTER GRAPHICS**

**(2008 PATTERN)**

**Time : Three Hours**

**Maximum Marks : 100**

- N.B. :—**
- (i) Answer *three* questions from Section I and *three* questions from Section II.
  - (ii) Answers to the two sections should be written in separate answer-books.
  - (iii) Neat diagrams must be drawn wherever necessary.
  - (iv) Figures to the right indicate full marks.
  - (v) Assume suitable data, if necessary.

**SECTION I**

1. (a) What do you mean by Computer Graphics ? Give different applications of Computer Graphics. [4]
- (b) Explain display file structure and role of display file interpreter. [6]
- (c) Explain DDA circle drawing algorithm. [6]

P.T.O.

*Or*

2. (a) Explain DDA line drawing algorithm with suitable example. [10]  
(b) Explain any *two* character generation methods. [6]
3. (a) Explain rotation of a triangle (A, B, C) about an arbitrary point  $P(x, y)$  in space. [8]  
(b) Explain 3D rotation. How is it different than 2D rotation ? [8]

*Or*

4. (a) Explain boundary fill polygon filling method. State its limitations. [8]  
(b) Explain the following : [8]
  - (i) Screen coordinates
  - (ii) World coordinates
  - (iii) Window
  - (iv) Viewport.
5. (a) Explain perspective projection and parallel projection. [8]  
(b) Explain parametric cubic curves. [6]  
(c) Explain concept of vanishing point. [4]

*Or*

6. Write short notes on : [18]
- (i) Sweep representation
  - (ii) Polygon surfaces
  - (iii) B-spline Curve.

## SECTION II

7. (a) Explain the following color model : [8]
- (i) RGB color model
  - (ii) Color Mixing.
- (b) Explain raster animations and double buffering. [8]

*Or*

8. (a) Explain need of computer animation and types of computer animation in detail. [10]
- (b) Explain different steps used in design of animation sequence. [6]
9. (a) Explain Gouraud Shading model. State advantages and limitations of it. [8]
- (b) Explain different components of local illumination model. Explain different basic light sources. [10]

*Or*

10. (a) Explain ray tracing algorithm. [6]  
(b) Explain Diffuse reflection illumination model. [6]  
(c) Explain local and global illumination. [6]
11. (a) Explain features of any Graphics tool that you have studied. [6]  
(b) What do you mean by interactive computer graphics ? [4]  
(c) Explain antialiasing with example. [6]

*Or*

12. Write short notes on : [16]  
(i) Texture mapping  
(ii) Bezier curves  
(iii) Fractal lines and surfaces  
(iv) Koch curve.