Total No. of Questions—**8**] [Total No. of Printed Pages—**2**

Seat No.	

[5057]-268

S.E. (I.T.) (Second Semester) EXAMINATION, 2016 COMPUTER GRAPHICS (2012 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Answer Q. No. **1** *or* Q. No. **2,** Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6,** Q. No. **7** *or* Q. No. **8**.
(*ii*) Neat diagrams must be drawn wherever necessary.
(*iii*) Figures to the right indicate full marks.
(*iv*) Assume suitable data, if necessary.

1. (*a*) What are the steps required to plot the line whose slope is between 0 to 45° using Bresenham's method ? [6]

(*b*) Write a pseudo-C algorithm for polygon filling by seed fill polygon. [6]

Or

2. (*a*) List various polygon filling algorithms. Explain scan line algorithm with mathematical formulation. [6]

(*b*) Explain DDA algorithm for line with example. Discuss its advantages and disadvantages. [6]

3. (*a*) Explain Cohen-Sutherland Algorithm with the help of suitable example. [6]

(*b*) Obtain the 3-D transformation matrices for : [6]
(*i*) Translation
(*ii*) Scaling
(*iii*) Rotation about an arbitrary axis.

P.T.O.

Or

4. (*a*) Describe Sutherland-Hodgman polygon clipping algorithm. What is its limitation ? [6]

(*b*) What is the concept of vanishing piont in perspective projection ? Explain with diagram. [6]

5. (*a*) Compare Gourand and Phong's method of shading. [7]

(*b*) Explain HSV and CMY colour model. [6]

Or

6. (*a*) Explain CIE chromaticity diagram; also explain how RGB to CMY conversion is done. [7]

(*b*) Compare RGB and HVS color model. [6]

7. (*a*) What are the properties of Bezier Curve ? Describe the procedure to generate Bezier Curve. [7]

(*b*) What do you mean by topological and fractal dimensions ? [6]

Or

8. (*a*) Explain how fractals are used to generate fractal surfaces. [7]

(*b*) Compare Bezier and B-spline techniques for curve generation and discuss properties. [6]