

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (OLD) EXAMINATION – WINTER 2018****Subject Code:160703****Date: 16/11/2018****Subject Name: Computer Graphics****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) List various techniques used for display graphics in computer. Explain CRT display with the help of diagram. **07**
- (b) Explain DDA line drawing algorithm. What are the limitations of DDA line drawing algorithm? **07**
- Q.2** (a) List and explain various 2D transformations. **07**
- (b) Explain the Bresenham's algorithm to draw line for any kind of slope **07**
- OR**
- (b) Explain working of Touch Panel and digitizer. **07**
- Q.3** (a) Write and explain the midpoint circle generation algorithm. **07**
- (b) Translate a Square ABCD with the coordinates A(0,0), B(5,0), C(5,5), D(0,5) by 2 units in X-direction and 3 units in Y-direction. **07**
- OR**
- Q.3** (a) Develop and implement a flood-fill algorithm to fill the interior of any specified area. What are the differences between flood-fill and boundary fill algorithm? **07**
- (b) Apply the shearing transformation to Square with A(0,0), B(1,0), C(1,1) and D(0,1) as given below: **07**
- a) Shear parameter value of 0.5 relative to line Yref = -1
- b) Shear parameter value of 0.5 relative to line Xref = -1
- Q.4** (a) Explain the Cohen Sutherland line clipping algorithm. **07**
- (b) What is window and view-port? Retrieve equations for the scaling factors to map the window to view-port in 2D viewing system. **07**
- OR**
- Q.4** (a) Explain the Nicholl-Lee-Nicholl (NLN) line clipping algorithm **07**
- (b) What is Bezier Curve? Define properties of Bezier Curve. **07**
- Q.5** (a) What is depth buffer method? Write and explain the steps of a depth buffer algorithm. **07**
- (b) Explain following color model: **07**
- 1) YIQ color model.
- 2) XYZ Color model.
- OR**
- Q.5** (a) Difference between parallel and perspective projection. **07**
- (b) Explain following color model: **07**
- 1) RGB color model.
- 2) CMY Color model.
