

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER- VI (Old) EXAMINATION – WINTER 2019****Subject Code: 160703****Date: 04/12/2019****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) Discuss any five computer graphics applications. **07**
(b) Explain working of CRT in detail with diagram **07**
- Q.2** (a) Why touch panels are used? Explain working of optical touch panel, electrical touch panel and acoustical touch panel **07**
(b) Explain refresh operation of video controller in raster-scan systems. **07**
- OR**
- (b) Find intermediate points of line from (6,6) to (14,10) using DDA line drawing algorithm. Which are limitations of DDA line drawing algorithm? **07**
- Q.3** (a) What do you mean by inside-outside test? Explain Odd parity rule and Non-zero winding number rule in detail. **07**
(b) Write and explain mid point circle drawing algorithm. **07**
- OR**
- Q.3** (a) Explain any two methods of character generation. **07**
(b) Apply following transformation to a triangle with coordinates A(2,5) , B(7,10) and C(10,2) **07**
(i) Translate original by 3 units in x direction and 4 units in y direction.
(ii) Scale original triangle by 1.5 unit in x-direction and 2 unit in y direction.
(iii) Rotate the original triangle by 45° about origin in clock wise direction
- Q.4** (a) Why window to view port transformation is required? Explain this transformation in detail. **07**
(b) Explain Liang Barsky Line Clipping Algorithm with example **07**
- OR**
- Q.4** (a) Explain Bezier curves and surfaces. **07**
(b) Explain 3D parallel projections **07**
- Q.5** (a) Explain RGB and YIQ color models **07**
(b) What is polygon clipping? Explain Sutherland Hodgeman Polygon clipping with example. **07**
- OR**
- Q.5** (a) Explain following illumination models: ambient light and diffuse refraction **07**
(b) What do you mean by composite transformation? Explain 3D Reflection and Shears transformation in detail. **07**
