

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2160703

Date:08/05/2018

Subject Name:Computer Graphics

Time:10:30 AM to 01:00 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) | Compare Raster Scan System with Random Scan System. | 03 |
| (b) | Explain Bresenham's Line drawing Algorithm. | 04 |
| (c) | Explain working of CRT. Differentiate between DVST & Refresh CRT. | 07 |
- Q.2**
- | | | |
|-----|--|-----------|
| (a) | Explain various methods of character generation. | 03 |
| (b) | Which are methods of inside-outside test? Explain each method in brief. | 04 |
| (c) | Derive necessary formulas for midpoint circle generation algorithm. Plot all intermediate points starting from (0, 10) in first quadrant for the same. | 07 |
- OR**
- | | | |
|-----|---|-----------------|
| (c) | Derive all formulas for midpoint ellipse generation algorithm, pseudo code for midpoint ellipse generation algorithm. | Write 07 |
|-----|---|-----------------|
- Q.3**
- | | | |
|-----|--|-----------|
| (a) | List and Explain various 2D transformation. | 03 |
| (b) | Explain boundary fill algorithm for polygon filling | 04 |
| (c) | Perform 45 degree rotation of a triangle A (0, 0) B (1, 1) C (5, 2). Find transformed coordinates after rotation | 07 |
- 1) About an origin
 - 2) About a point C(-1,-1)
- OR**
- Q.3**
- | | | |
|-----|--|-----------|
| (a) | Rasterize a line between (0,0) to (4,6) using DDA line drawing algorithm | 03 |
| (b) | Explain flood fill algorithm for polygon filling | 04 |
| (c) | What is anti-aliasing? List and explain different methods of anti-aliasing in brief. | 07 |
- Q.4**
- | | | |
|-----|---|-----------|
| (a) | Explain window to view port transformation | 03 |
| (b) | Rotate a point P (2,-4) about the origin 30 degree in anti-clockwise direction. | 04 |
| (c) | Explain Cohen Sutherland Line clipping algorithm with example. | 07 |
- OR**
- Q.4**
- | | | |
|-----|--|-----------|
| (a) | Explain properties of Bezier curve. | 03 |
| (b) | What is a need of homogeneous co-ordinates? Give homogeneous co-ordinates for translation, rotation and scaling. | 04 |
| (c) | Explain Sutherland –Hodgeman Polygon clipping algorithm with example. | 07 |
- Q.5**
- | | | |
|-----|---|-----------|
| (a) | What is color model? Explain RGB color model. | 03 |
| (b) | Explain any two 3D display methods. | 04 |
| (c) | Explain Z buffer algorithm with example. | 07 |
- OR**
- Q.5**
- | | | |
|-----|--|-----------|
| (a) | Briefly explain CMY color model. | 03 |
| (b) | What is geometric and parametric continuity? Explain both with example. | 04 |
| (c) | Compare parallel and perspective projection. Briefly explain different types of parallel projection. | 07 |