

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI(OLD) – EXAMINATION – SUMMER 2019

Subject Code:160703

Date:10/05/2019

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) Discuss various applications of computer graphics. **07**
(b) Write a detail note on CRT **07**
- Q.2** (a) Differentiate: Raster Scan vs. Random Scan **07**
(b) 1). If transfer rate of system is 10^4 bits / second then what amount of time is require to load frame buffer of size 400×300 which supports 256 colors? **07**
2). If a true color display system has 300 scan lines and aspect ratio of 3:4, how many bits per second are required to show 60 frames per second?
- OR**
- (b) Explain DDA line drawing algorithm with its limitations **07**
- Q.3** (a) Calculate the pixel position along circle path with radius $r = 10$ centered on the origin using midpoint circle algorithm up to $x = y$ **07**
(b) Write an algorithm for midpoint ellipse. **07**
- OR**
- Q.3** (a) Explain various methods of inside-outside tests. **07**
(b) Derive the 2D rotation matrix for rotation about origin and rotation with respect to reference point. **07**
- Q.4** (a) Explain Cohen-Sutherland line clipping algorithm. **07**
(b) Discuss properties of Bezier curve. **07**
- OR**
- Q.4** (a) Differentiate: Parallel vs. Perspective Projection **07**
(b) Explain cavalier and cabinet projection with suitable diagram **07**
- Q.5** (a) The pyramid with co-ordinates A (0, 0, 0), B (1, 0, 0), C (0, 1, 0) and D (0, 0, 1) is to be rotated by 90° about line L that has direction vector $v = j + k$ and passing through point (0, 1, 0). Find the co-ordinates of transformed pyramid. **07**
(b) Explain XYZ and RGB color model. **07**
- OR**
- Q.5** (a) Write a short note on back face detection **07**
(b) Write a short note on Gouraud shading **07**
