

II B. Tech I Semester Supplementary Examinations, May - 2019
COMPUTER GRAPHICS
 (Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**

PART -A

1. a) What is the transformation matrix for rotation about origin. (3M)
- b) What are Bernstein polynomials? (2M)
- c) Describe the YIQ color model. (3M)
- d) Define flat shading. (2M)
- e) What are self-affine fractals? (2M)
- f) What is Ray Casting. (2M)

PART -B

2. a) Devise a parallel method for implementing the line-width function. (7M)
- b) Justify that the Sutherland - Hodgeman algorithm is not suitable for clipping when the clipping polygon is a concave window. (7M)
3. a) Explain the steps involved in transformation from world to viewing coordinates in 3-dimensional domain. (7M)
- b) Write a procedure to obtain different parallel-projection views of a polyhedron by first applying a specified rotation. (7M)
4. a) Discuss about the luminosity function of three primary colors. (7M)
- b) Explain the procedure to generate the in-betweens for the key frames. (7M)
5. a) Discuss how the Mach-band effects are eliminated in Phong shading. (7M)
- b) Write the characteristics of the following illumination parameters. (7M)
 - i) Diffuse reflection
 - ii) Specular reflection and
 - ii). Refraction.
6. a) What is Julia set? Explain the role of these sets in computer graphics. (7M)
- b) Explain the geometric construction of statistically self-similar fractals. (7M)
7. a) Discuss the intersecting rays with a square. (7M)
- b) Write a routine to implement texture mapping for polyhedrons. (7M)