

T.E / I T / SEM V / CGVR / CBCS

31 MAY 2019

(3 Hours)

[Total Marks: 80]



- NB : 1) **Question 1** is compulsory.  
2) Attempt any **three** questions from the **remaining** questions.  
3) **Assume** suitable **data** wherever applicable.  
4) **Draw figures** wherever applicable.

- 1 (a) Explain different applications of computer graphics. 5  
(b) Explain different types of virtual reality systems. 5  
(c) Prove that two successive rotation are additive. 5  
(d) Explain fractals 5
- 2 (a) Explain Virtual reality architecture. 10  
(b) Explain Bresenham's line drawing algorithm. Explain how it is different from DDA 10
- 3 (a) Find the Bézier curve given 4 control points (25,25), (45,40), (60,45) and (90,10) using the step size as 0.1. 10  
(b) List various polygon filling algorithms and explain boundary fill in detail. 10
- 4 (a) Explain geometric and kinematic modeling in detail 10  
(b) Explain Sutherland Hodgeman polygon clipping algorithm. 10
- 5 (a) Explain 3D transformations with suitable example for each. 10  
(b) Explain Liang Barsky line clipping algorithm with example. 10
- 6 Write short note on (any four) 20  
(a) Antialiasing techniques  
(b) Application of Virtual Reality  
(c) Text Clipping  
(d) VR toolkit  
(e) Morphing techniques