

(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.

- Q1. a Explain the applications of virtual reality 5
 b Explain parallel and perspective projections 5
 c Explain the need for homogeneous matrix representation. 5
 d Explain boundary filling and flood filling algorithm 5
- Q2. a Explain Bresenham's line drawing algorithm. How it is different from DDA 10
 b Define virtual reality. Explain the components of VR. 10
- Q3. a Explain input and output devices used for virtual reality systems. 10
 b Explain Sutherland Hodgeman polygon clipping. 10
- Q4. a Define curve? How Bezier curve algorithm works? List out properties of the same. 10
 b Explain graphics rendering pipeline. 10
- Q5 a Explain 3D transformations i.e. translation, scaling, rotation, reflection with examples. 10
 b Describe computer animation and the use of 2D and 3D morphing in it. 10
- Q6. Write short notes on (**any four**) 20
 a. VRML
 b. Color Models.
 c. Fractals
 d. Aliasing and Anti-aliasing
 e. Text clipping