SEAT No. :

P7768

[6180]-315

T.E. (Computer Engg.) (Honors)
VIRTUAL REALITY AND AUGMENTED REALITY
Virtual Reality
(2019 Pattern) (Semester-I) (310701)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
2) *Figures to the right indicate full marks.*
3) *Neat diagrams must be drawn whenever necessary*
4) *Assume Suitable data if necessary.*

Q1) a) Describe Physiology of the human eye with a diagram. **[9]**

b) What are axis angle representations of rotation? **[8]**

OR

Q2) a) What is Orthographic projection and Perspective projection. **[9]**

b) Write a note on Geometry of Virtual Worlds. **[8]**

Q3) a) Explain Rasterization in detail? **[6]**

b) Explain in detail the Rasterization process in Visual Rendering. **[12]**

OR

Q4) a) Explain following term w.r.t monocular depth cues with diagram. **[6]**

    i) Retinal image size

    ii) Height in the visual field

    iii) Motion parallax

b) Explain the different ways to correct optical distortions? **[6]**

c) How to correct Optical Distortions. **[6]**

Q5) a) Explain Tracking position and orientation? **[7]**

b) State and Explain different types of vection. **[5]**

c) Define velocities and acceleration? **[5]**

OR

Q6) a) Define the following terms w.r.t 2D Tracking system. **[10]**

  i) Calibration

  ii) Integration

  iii) Registration

  iv) Drift error

b) How the visibility problem is solved using Camera-based implementation. **[7]**

Q7) a) What are Design considerations and interaction mechanisms for virtual reality? **[9]**

b) Illustrate the different monaural cues. **[9]**

OR

Q8) a) Explain the interaction with Motor programs and remapping of audio? **[12]**

b) Explain Locomotion and Manipulation for the interaction mechanism of VR. **[6]**

❖ ❖ ❖