



Department of Computer Science and Engineering

Cycle Test 1

CSPE 51 – Augmented and Virtual Reality

Date : 30.08.2024

Time : 10.30 am – 11.30 am

Max. mark : 20

1. a) List out the challenges involved in immersive technologies. (1)  
b) What is FoV? In what way is it useful in VR technologies? (1)  
c) How many degrees of freedom does Oculus Quest 2 HMD track? Explain them. (1)  
d) In what ways does the participant interact with the objects in the virtual world? Explain the interaction ways with suitable examples. (3)
2. a) How is the reality perceived in VR? (3)  
b) What is haptic feedback and how is it useful in VR? Give an example of it. (2)  
c) Explain different travel paradigms used in VR experiences. (2)
3. a) A Bezier curve is drawn with the control points P, Q, R, S. To alter the shape of the curve one needs to shift ----- (4)  
b) Consider a circle of radius 2 with center located at (2,2). Perform a rotation of  $90^\circ$  to the center. What is the new coordinate value after rotation? (1)  
c) In a 2D graphics system, the transformation matrix reflects a point about the diagonal line passing through the origin and line (10,10). Is the resultant transformation being same as the following? (2)  
“The coordinate matrix rotated  $45^\circ$  clockwise direction followed by the reflection about X-axis and finally applying inverse rotation about the origin”. Justify your answer with an example. (3)