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Question Paper Code: U7F02

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Seventh Semester

Computer Science and Design

21UCD702 -VIRTUAL REALITY AND AUGMENTED REALITY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List two common applications of augmented reality. CO1-U
2. What is object tracking in augmented reality? CO1-U
3. How do virtual reality and virtual environments differ? CO1-U
4. What is the significance of field of view (FOV) in VR headsets? CO1-U
5. How do 3D tracking devices enhance user interaction in 3D environments? CO1-U
6. What is a bounding volume and why is it used in 3D environments? CO1-U
7. What is incremental tracking, and why is it important in dynamic AR environments? CO1-U
8. How does virtual reality improve learning experiences in educational settings? CO1-U
9. What is the role of 3D printing in modern engineering? CO1-U
10. What role does artificial intelligence (AI) play in enhancing the realism of video games? CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) Design a mobile application that integrates augmented reality to assist users in learning about historical landmarks. What features would you include, and how would you ensure usability and accuracy? CO2-App (16)

Or

- (b) Design an augmented reality experience for tourism promotion in a city or region. Explain how AR would attract tourists and enhance their experience. CO2-App (16)

12. (a) Describe the process of 3D clipping and its significance in rendering 3D graphics. CO1-U (16)
- Or
- (b) Discuss the key requirements for creating effective Virtual Environments (VEs) and the benefits of using VR technology. CO1-U (16)
13. (a) How would you integrate 3D tracking devices into a virtual reality setup to optimize user interaction? CO1-U (16)
- Or
- (b) Explain how you would handle the geometry, position, and orientation of objects in a 3D application to ensure realistic interactions. CO1-U (16)
14. (a) What are the key challenges associated with outdoor tracking in AR, and how can these challenges be mitigated? CO1-U (16)
- Or
- (b) Explain how VR can transform educational experiences. What are the advantages of using VR in classrooms, and what challenges might educators face when implementing it? CO1-U (16)
15. (a) Discuss the impact of Virtual Reality (VR) on the gaming and entertainment industries. How has VR transformed user experiences in these fields? CO1-U (16)
- Or
- (b) Explain the purpose of data visualization in handling large datasets, and how does it aid in interpreting data? CO1-U (16)