BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - VIII Computer Science & Engineering : SUMMER : 2025
SUBJECT: AUGMENTED & VIRTUAL REALITY

Day : Friday
Date : 23/05/2025

S-25613-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Assume suitable data **WHEREVER** necessary.
4) Draw neat diagrams **WHEREVER** necessary.

Q.1 Define augmented reality (AR) and virtual reality (VR). What are the Challenges with AR? **(10)**

OR

Q.1 Compare augmented reality with mixed reality and extended reality. How are these terms related, and how do they differ in terms of technology and user experience? **(10)**

Q.2 Illustrate the key components of a virtual reality (VR) system. How do these components work together to create a virtual environment? **(10)**

OR

Q.2 Discuss the role of tracking systems in virtual reality. What are some common tracking technologies used in VR, and how do they contribute to the user's sense of presence? **(10)**

Q.3 Explain the concept of perspective projection and its importance in computer graphics. Describe the steps involved in perspective projection. **(10)**

OR

Q.3 Describe common techniques used to convert 2D images to 3D models. **(10)**

Q.4 Explain the role of motion controllers in VR systems. How do motion controllers allow users to interact with virtual objects and navigate through virtual environments? **(10)**

OR

Q.4 Compare and contrast different VR input devices, such as motion controllers, haptic gloves, and eye-tracking systems. What are the advantages and limitations of each type of device? **(10)**

Q.5 Write different approaches to AR development, such as marker-based AR, markerless AR, and projection-based AR. What are the advantages and limitations of each approach? **(10)**

OR

Q.5 Discuss the challenges associated with developing and deploying AR systems. How do factors like hardware limitations, environmental conditions, and user acceptance impact the adoption of AR technology? **(10)**

Q.6 Explain the concept of "simulator sickness" in VR applications. What are some strategies for minimizing simulator sickness and improving user comfort in VR environments? **(10)**

OR

Q.6 Explain the process of integrating AR/VR features into existing applications. What are some considerations for adding AR/VR functionality to mobile apps, websites, and other platforms? **(10)**

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