

**BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)**  
**B.Tech.Sem - VIII COMPUTER SCIENCE & ENGINEERING : SUMMER : 2024**  
**SUBJECT: AUGMENTED & VIRTUAL REALITY**

Day : Monday  
Date : 27/05/2024

**S-24353-2024**

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 labeled diagrams wherever necessary.

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- Q.1** What is Augmented Reality? Explain different visualization techniques used in AR. (10)
- OR**
- Q.1** Describe some applications of Augmented Reality in architecture and manufacturing. How can AR be used to visualize complex designs and to improve productivity in these industries? (10)
- Q.2** Describe the software architecture of a typical VR system. Explain in your own words how VR is interactive, immersive and imaginative. (10)
- OR**
- Q.2** Explain concept of haptics in virtual reality. How can haptic feedback be integrated into VR systems to enhance the user experience? (10)
- Q.3** Describe the steps involved in perspective projection and how it transforms 3D coordinate to 2D. (10)
- OR**
- Q.3** Discuss the challenges and techniques involved in creating realistic stereo perspective projections. (10)
- Q.4** Explain the concept of gesture recognition in VR input devices. How can gesture recognition technology be used to interpret and respond to user movements in Virtual Environment? (10)
- OR**
- Q.4** Describe the role of input devices in VR systems. What are some common input devices used to interact with virtual environments and how do they work? (10)
- Q.5** Describe the functionality of AR systems. What are key components of an AR system and how do they work together? (10)
- OR**
- Q.5** Compare and contrast different approaches to AR development such as marker-based, markerless AR and projection-based AR. What are the advantages and limitations of each approach? (10)
- 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)
- OR**
- Q.6** Describe strategies for enhancing interactivity in AR environments. How can AR systems incorporate gestures, voice commands and other forms of natural interaction to improve user engagement? (10)
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