



BTECH
(SEM VI) THEORY EXAMINATION 2023-24
AUGMENTED & VIRTUAL REALITY

TIME: 3 HRS

M.MARKS: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

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a.	Define Virtual Environments and their significance in VR applications.
b.	What are the benefits of incorporating visual displays in VR headsets?
c.	What is a 3D mouse?
d.	What are some key characteristics of an ideal input device for 3D modeling applications?
e.	Explain the concept of hardware controls in virtual reality applications.
f.	What is the purpose of a world space database?
g.	What criteria are used to evaluate the effectiveness of wayfinding aids?
h.	Write an example of a medical application of virtual reality?
i.	Describe a feature of augmented reality applications.
j.	Explain the concept of occlusion in augmented reality rendering.

SECTION B

2. Attempt any *three* of the following:

a.	Define Virtual Environments and discuss their applications across different domains, such as gaming, training, education, and therapy.	10
b.	Describe the functionality of 3D mice and their advantages over traditional two-dimensional input devices in 3D interface design.	10
c.	Describe the attributes of objects in virtual environments, including geometry, position, orientation, hierarchy, and bounding volume.	10
d.	Discuss the effectiveness of interaction techniques for 3D manipulation in terms of user performance and satisfaction.	10
e.	Compare and contrast augmented reality (AR) with virtual reality (VR), focusing on their fundamental differences in user experience and application scenarios.	10

SECTION C

3. Attempt any *one* part of the following:

a.	How did flight simulation contribute to the evolution of Virtual Reality technology?	10
b.	What factors should be considered when selecting output devices for VR applications?	10

4. Attempt any one part of the following:

<p>4. Attempt any one part of the following:</p>		
a.	Explain the importance of real-time feedback in input devices for 3D interfaces.	10
b.	Discuss the advantages and limitations of eye tracking technology as an input method in 3D user interfaces.	10

5. Attempt any one part of the following:

a.	Describe the role of control panels in virtual reality applications. How are control panels utilized to adjust settings, manipulate objects, or navigate within VR environments?	10
b.	Discuss the significance of world coordinates in virtual reality applications. How are world coordinates used to define the spatial positions and orientations of objects within virtual environments?	10

6. Attempt any *one* part of the following:

a.	Analyze the impact of emerging technologies, such as augmented reality or mixed reality, on the design and development of 3D user interfaces.	10
b.	Explore the role of virtual reality in the field of engineering, highlighting its applications in design visualization, simulation, and training.	10

7. Attempt any *one* part of the following:

a.	Evaluate the role of wireless displays in educational augmented reality applications, discussing their advantages in facilitating collaborative learning and interactive experiences.	10
b.	Discuss the ethical and privacy concerns associated with augmented reality technologies, addressing issues such as data privacy, surveillance, and digital trespassing.	10