K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:I
Class:FYMCA	Program:MCA
Branch Code:M.C.A.	Pattern:2024
Name of Course:Augmented Reality and Virtual Reality	Course Code:2409505C
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains __TWO___page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1a)	Define computer graphics. Explain its applications in real life.	(6)	CO1
Question No. 2			
2a)	What is animation? Explain types and principles of animation.	(6)	CO2
Question No. 3			
3a)	Illustrate the use of Augmented Reality in a practical application and explain its working principle.	(8)	CO3
	OR		
3b)	Show different types of AR displays: visual, audio, and haptic.	(8)	CO3
3c)	Compare Augmented Reality and Virtual Reality with examples.	(8)	CO3
	OR		
3d)	Apply and explain the process of marker-based tracking in AR applications.	(8)	CO3
Question No. 4			
4a)	How does Simultaneous Localization and Mapping (SLAM) support AR applications?	(8)	CO4
	OR		
4b)	Illustrate the working of a Virtual Reality system by applying its key components in a practical scenario.	(8)	CO4
4c)	Demonstrate the working architecture of a Virtual Reality system using a suitable example.	(8)	CO4
	OR		
4d)	Illustrate how haptic feedback enhances VR experience.	(8)	CO4
Question No. 5			
5a)	Demonstrate the application of different input interfaces used in Virtual Reality systems by explaining how they capture user interactions.	(8)	CO5

OR

5b)	Apply body tracking and hand gesture recognition techniques to illustrate how user interactions are captured and interpreted in interactive applications.	(8)	CO5
5c)	Illustrate the use of the GHOST (General Haptics Open Software Toolkit) in developing a simple haptic interaction system.	(8)	CO5

OR

5d)	Illustrate and compare various input and output interface models used in Virtual Reality based on their application scenarios.	(8)	CO5

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