



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A. Y. 2022-23)

WINTER-2024	
Exam Seat No.:	
Academic Year:2024-2025	Semester: I
Class: PG-I	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 2 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 indicate the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

Marks CO

Question No. 1

- 1a) What are the basic principles of animation, and why are they important in creating smooth animations? (6) CO1

Question No. 2

- 2a) Summarize the working principle of augmented reality systems in your own words. (6) CO2

Question No. 3

- 3a) Demonstrate how template markers are used in a marker-based tracking system by describing their application in a practical scenario. (8) CO3

OR

- 3b) Illustrate the differences between marker-based and marker-less tracking methods using examples from AR applications. (8) CO3

- 3c) Determine the pros and cons of marker based and markerless augmented reality. (8) CO3

OR

- 3d) Illustrate different types of tracking methods used in augmented reality. (8) CO3

Question No. 4

- 4a) Illustrate the key components of a Virtual Reality system by explaining their role in delivering an immersive experience. (8) CO4

OR

- 4b) Demonstrate how aural (audio) displays are implemented in Virtual Reality to enhance user immersion. (8) CO4

- 4c) Demonstrate the role of virtual reality in education by explaining its application for interactive learning in a chosen field. (8) CO4

OR

4d) Illustrate the significance of haptic feedback in enhancing the realism of virtual environments. (8) CO4

Question No. 5

5a) Apply the concept of tracking to explain its role in enhancing user interaction in VR. (8) CO5

OR

5b) Examine how a digital glove can be applied to capture hand movements in VR applications. (8) CO5

5c) Examine how object grasping can be simulated in VR systems. (8) CO5

OR

5d) Predict the effectiveness of 3D menus in improving user interface experiences in VR. (8) CO5

..... **End of question paper**.....