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

End-Sem Examination- Winter 2025
Marking Scheme

Academic Year: 2025-2026	**Semester: I**
Name of Programme: MCA	**Pattern: 2022**
Name of Course: Augmented Reality and Virtual Reality	**Course Code: MCA222003C**
Max. Marks: 60	**Duration: 2:30Hr.**

Q. No.	Details	Step Wise Marks	Max. Marks
1	**Define Animation and write any three uses of animation. Also, explain the DDA algorithm for line drawing with a neat diagram.** Definition of Animation – 1 Marks 3 Uses = 2 Marks Definition of DDA Algorithm – 1 Mark Neat diagram – 2 Marks	● 1Marks ● 2Marks ● 1Marks ● 2 Marks	[6]
2	**Explain the concept of Augmented Reality. Describe its working principle and explain any three applications of Augmented Reality in simple words.** Definition – 2 Marks Steps / Working – 2 Marks Example / Diagram – 2 Marks	● 2Marks ● 2Marks ● 2Marks	[6]
Q.3	**a) Apply the working of natural feature tracking by detection in Augmented Reality.(8 marks)** Definition of VR – 2 Marks	● 2Marks ● 6Marks	[16]

	Any four uses (1.5 marks each):6 Marks **OR** **b) Apply the method of SLAM (Simultaneous Localization and Mapping).(8 marks)** Definition – 2 Marks Working Steps – 4 Marks Applications – 2 Marks	• 2Marks • 4Marks • 2Marks	
	c) Apply the marker-less tracking method in Augmented Reality to augment a virtual object in a real-world scene. Explain the process of localization-based augmentation and how feature-based tracking is used. (8 marks) Definition – 2 Marks Working – 4 Marks Applications – 2 Marks **OR** **d) Illustrate the steps involved in marker-less tracking.(8 marks)** Definition – 2 Marks Steps / Working – 4 Marks Applications + Diagram – 2 Marks	• 2Marks • 4Marks • 2Marks	
Q.4	**a)** Illustrate the use of Virtual Reality systems. **(8)** Definition – **2 Marks**	• 2Marks • 6Marks	[16]

	Any four to six uses – **6 Marks** **OR** **b)** How would you use the role of human physiology in Virtual Reality**(8 marks)** Definition – **2 Marks** Role of senses & body – **6 Marks**		
	c)Demonstrate how the input devices are used in Virtual Reality **(8 marks)** Definition – **2 Mark** Any four to six devices with use – **6 Marks** **OR** **D)I**llustrate the input–output interface of a Virtual Reality system**(8 marks)** Definition – **2 Marks** Input Devices – **3 Marks** Output Devices – **3 Marks**	• 2Marks • 6Marks • 2Marks • 3Marks • 3Marks	
Q.5	**a)** Examine the working of combined Visual, Auditory, and Haptic Devices**.(8 marks)** Definition – **2 Marks** Working – **4 Marks** Applications – **2 Marks** **OR** **b)**Break down the use of 3D Menu interaction in Virtual Reality**.(8 marks)** Definition – **2 Marks** Working / Use – **4 Marks** Applications – **2 Marks**	• 2 Marks • 4Marks • 2Marks	[16]
	c)Outline the use of multiple output models in Virtual Reality systems by analyzing how each model contributes to user	• 2Marks	

	interaction and immersive experience..**(8 marks)** Definition – **2 Marks** Any three to four output models with use – **6 Marks** **OR** **d)**Categorize the stages involved in the working of a 3D scanner for Virtual Reality applications..**(8 marks)** Definition – **2 Marks** Working – **4 Marks** Applications – **2 Marks**	• 6Marks • 2Marks • 4Marks • 2Marks	