

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2023****Subject Code:3155205****Date:11-12-2023****Subject Name:Virtual Reality and Immersive Technology****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain Virtual Reality in brief.	03
	(b) Discuss Aural & Haptic Displays in detail.	04
	(c) Explain Human Physiology and perception in detail.	07
Q.2	(a) Explain different types of VR.	03
	(b) List and discuss applications of mixed reality.	04
	(c) List and discuss applications of Virtual Reality.	07
	OR	
	(c) Explain manipulation, navigation, and communication in detail.	07
Q.3	(a) What is Motion Tracking?	03
	(b) Discuss relationship between Augmented Reality and other Technologies.	04
	(c) Explain Mobile VR Controller Tracking. Also explain UI for VR.	07
	OR	
Q.3	(a) What is sensor fusion?	03
	(b) What is outdoor tracking? Discuss marker-less approach.	04
	(c) Describe characteristics of tracking technology in detail.	07
Q.4	(a) What is SLAM? Explain in brief.	03
	(b) What is Object Manipulation and Text optimizing?	04
	(c) List ARToolkit and its features.	07
	OR	
Q.4	(a) What is Marker Tracking?	03
	(b) Differentiate: Dense Tracking and Mapping (DTAM) vs Parallel Tracking and Mapping (PTAM)	04
	(c) Explain OpenVR SDK, StreamVR SDK, VRTK, Oculus SDK, Google VR SDK in detail.	07
Q.5	(a) What is semi-direct monocular visual odometry (SVO)?	03
	(b) Brief about Light estimation and Occlusion.	04
	(c) List AR Core and its features.	07
	OR	
Q.5	(a) What is semi-direct monocular visual odometry (SVO)?	03
	(b) Explain pose tracking and raycasting.	04
	(c) List features of Vuforia. Explain steps for setting up the environment for application development.	07