

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3171612****Date: 19/06/2023****Subject Name: Virtual and Augment Reality****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) Define Virtual Environment, User Immersion and Degree of Interaction?	03
	(b) What is Flight Simulator Concept? What are the outcomes of it?	04
	(c) What is the need for a Virtual Environment? Explain all points in detail	07
Q.2	(a) Explain Visual Feedback and immersion in Detail?	03
	(b) Define computer graphics and also discuss rendering process.	04
	(c) What is perspective Projection? Explain Control of Perspective & Field of View in detail.	07
OR		
	(c) Explain the Positioning of Virtual Observer. Direction cosines & XYZ fixed angles in detail.	07
Q.3	(a) What is Scotopic vision & photopic vision?	03
	(b) Define Color spaces. Explain RGB and HSV Color spaces in detail.	04
	(c) What is 3D clipping? Explain Clipping algorithms & Back – face Removal in detail.	07
OR		
Q.3	(a) Explain the Monocular Depth Cues, Motion Depth Cues and Perspective Depth Cues.	03
	(b) What is Scotopic vision & photopic vision? Explain in detail.	04
	(c) What is Shading? Explain the various algorithms of it.	07
Q.4	(a) Explain 2D to 3D Conversion & Extrusions in detail.	03
	(b) Explain 3D Space Curves & Parametric Space Curves in detail.	04
	(c) What is the Swept Surfaces? Explain Arbitrary Polygonal objects & 3D Digitizers in detail.	07
OR		
Q.4	(a) Explain 3 'I' of virtual reality.	03
	(b) What is marker-less tracking for augmented reality?	04
	(c) Discuss the use of virtual reality in Education field.	07
Q.5	(a) Differentiate virtual reality and augmented reality.	03
	(b) Write short note on display technologies of Augmented Reality with diagram.	04

(c) Discuss in detail the use of Augmented Reality in entertainment field. **07**

OR

Q.5 (a) Write a short note on Google Cardboard. **03**

(b) Discuss major points for “VR and AR in Film and TV Production Industry”. **04**

(c) List and explain the various challenges with Augmented Reality. **07**
