

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3164904

Date: 01/06/2026

Subject Name: Game Design and Development

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.**

Q.1 (a) Write a brief history of video games. Explain the evolution from early arcade games to modern gaming. **03**

(b) Differentiate between Conventional Games and Video Games with suitable examples. **04**

(c) Explain the various stages of the game design process from concept to final release. **07**

Q.2 (a) What is a game genre? Explain any three classic game genres with examples. **03**

(b) How does a game concept evolve from an initial idea to a final game concept? Explain with an example. **04**

(c) Describe the Level Design Process in detail. Draw a flowchart showing the steps involved. **07**

OR

Q.2 (c) Explain the key design principles of Level Design. What are the common pitfalls to avoid during level design? **07**

Q.3 (a) List and explain the benefits and advantages of using Unity game engine for game development. **03**

(b) What are Scenes in Unity? Explain how to create, load, and save scenes. How do you work with multiple scenes? **04**

(c) Draw a labeled diagram of the Unity interface and explain the functions of Scene View, Game View, Hierarchy, and Inspector windows. **07**

OR

Q.3 (a) What are Game Objects and Components in Unity? Explain the relationship between them with an example. **03**

(b) What are Prefabs in Unity? Discuss their advantages and how they are created and used. **04**

(c) Explain the process of building and publishing a game using Unity for any one platform (Windows/Android). **07**

Q.4 (a) Explain the different data types, constants, and variables in C# with examples. **03**

(b) What are Arrays in C#? Explain single-dimensional and multi-dimensional arrays with code examples. **04**

(c) Explain the four pillars of Object-Oriented Programming (OOP). Give a game-related example for each. **07**

OR

Q.4	(a) What are Classes and Namespaces in C#? Create a simple Player class with basic properties.	03
	(b) Explain the concepts of Inheritance and Encapsulation in C# with code examples relevant to game development.	04
	(c) Write a C# script in Unity that moves a game object forward when the spacebar is pressed. Explain the code.	07
Q.5	(a) Explain the 2D game system in Unity. How does it differ from the 3D system?	03
	(b) Explain the purpose and use of the following classes in Unity: GameObject, MonoBehaviour, and Transform.	04
	(c) Explain 2D Physics in Unity. What is the role of Rigidbody 2D and Collider 2D components?	07
	OR	
Q.5	(a) What are Vectors in Unity? Explain Vector2 and Vector3 with examples.	03
	(b) Explain the Time class in Unity. Why is Time.deltaTime important for smooth movement?	04
	(c) Explain the steps to develop a complete 2D game project in Unity. What are the essential elements to include?	07
