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Question Paper Code: U6F01

B.E./B.Tech. DEGREE EXAMINATION, NOV 2025

Sixth Semester

Computer Science and Design

21UCD601- GAME DESIGN AND DEVELOPMENT

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	Mention some common types of game views for the human player.	CO1-U
2.	Discuss about Game Engine and its components with example.	CO1-U
3.	List out the difference between Smart and Naked pointers.	CO1-U
4.	Mention the grab bag of useful elements in game design	CO1-U
5.	Define Entity-Component System (ECS)	CO1-U
6.	Mention the best Practices for Data Sharing in Game Design	CO1-U
7.	Define main loop structure with pseudo code.	CO1-U
8.	Mention few practices to ensure that your game interacts effectively and harmoniously with the underlying operating system.	CO1-U
9.	Discuss some of the safety tips to keep in mind in game design	CO1-U
10.	Write down the steps to be considered while working with two-axis control in game design.	CO1-U

PART – B (5 x 16= 80 Marks)

11. (a) You are part of a development team working on a competitive multiplayer first-person shooter (FPS) game. The game aims to support large-scale battles with up to 100 players simultaneously. Each player has a unique set of skills and abilities, and the game includes destructible environments. Describe the architectural decisions you would make to handle real-time synchronization, minimize latency, and ensure fair game play in such a demanding multiplayer environment.   CO2-App   (16)

(b) Consider the scenario of game environment is dynamic, with changing weather conditions, day-night cycles, and unpredictable events. How would your AI agent adapt its strategies to the evolving in-game environment?   CO2-App   (16)

12. (a) Explain in detail about Smart Code design Practice.   CO1-U   (16)

Or

(b) Explain in detail about steps to be followed for developing the right style in game design.   CO1-U   (16)

13. (a) Imagine a scenario where a game development team is working on a 3D adventure game set in a magical world. The team needs to create various game actors, including characters, creatures, and interactive objects. Let's explore the key steps and considerations for building these game actors.   CO2-App   (16)

Or

(b) In a game where various systems (e.g., graphics, physics, AI) need to share data, how would you design a data-sharing mechanism to ensure efficient communication without introducing bottlenecks?   CO2-App   (16)

14. (a) Explain in detail about steps involved in organizing the main loop.   CO1-U   (16)

Or

(b) Discuss in detail about the types of Game Resources.   CO1-U   (16)

15. (a) Discuss in detail about Direct Input, its usage and its pros and cons in Game design and development.   CO1-U   (16)

Or

(b) How can we optimize keyboard controls to ensure a smooth and intuitive user experience for players?   CO1-U   (16)

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