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Question Paper Code: U6F01

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

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)

Or

- (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)