A

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Why decision trees commonly used in AI for 3D games?   CO1-U

    (a) To control the texture mapping process

    (b) To simulate natural disasters in the game

    (c) To model the decision-making process of NPCs.

    (d) To optimize the game's loading times.

2. What is a sprite sheet used for in game development?   CO1-U

    (a) Storing 3D models of characters and environments.

    (b) Combining multiple 2D images into a single texture for animations.

    (c) Generating terrain textures for realistic landscapes.

    (d) Managing game physics and collision detection.

3. How is a bicubic surface patch typically represented?   CO1-U

    (a) By a single polynomial equation

    (b) By a set of Bézier curves

    (c) By four control points

    (d) By a grid of control points defining cubic Bézier curves in two directions

4. What is a common application of controller-based animation in interactive media?   CO1-U

(a) Rendering still images

(b) Creating static 3D models

(c) Animating characters in response to player actions in video games

(d) Designing user interfaces without animation

5. In a game with multiple moving objects, you notice screen tearing, where part of the screen shows the previous frame while the rest shows the current frame. Which technique should you implement to prevent this issue?   CO1-U

(a) Double Buffering   (b) Culling   (c) Texture Mapping   (d) Fragment Shading

6. What component in a computer is most responsible for performing hardware rendering tasks?   CO1-U

(a) Central Processing Unit (CPU)   (b) Random Access Memory (RAM)

(c) Graphics Processing Unit (GPU)   (d) Hard Disk Drive (HDD)

7. In the context of game AI, what does 'finite state machine' (FSM) refer to?   CO1-U

(a) A system for rendering game graphics

(b) A model for defining different states of an AI character and the transitions between these states

(c) A method for encrypting game data

(d) A technique for optimizing game performance

8. In which genre is games like "Civilization" and "Age of Empires" categorized?   CO1-U

(a) Racing   (b) Role-Playing Games (RPG)   (c) Real-Time Strategy (RTS)   (d) Sports

9. In a 3D game environment, you need to find the shortest path between two points. Which pathfinding algorithm would you apply to ensure efficiency and accuracy?   CO1-U

(a) Depth-first search (DFS)   (b) Breadth-first search (BFS)

(c) Dijkstra's algorithm   (d) A* algorithm

10. In a racing game, what part of the game logic ensures that the player's car slows down when it goes off the track?   CO1-U

(a) Rendering engine   (b) Collision detection

(c) Physics engine   (d) Sound system

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11. (a) Explain a Multithreaded Rendering Pipeline for a Real-Time 3D   CO2-App   (20)
        Game programming.

                                    Or

    (b) Generate a particle system using parametric curves to simulate   CO2-App   (20)
        various effects like fire, smoke, or explosions.

12. (a) Explain how to optimize the rendering of large-scale outdoor   CO2-App   (20)
        environments.

                                    Or

    (b) Compare and contrast the storytelling approaches of two single-   CO2-App   (20)
        player adventure games.

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