C–6161	Sub. Code
	83413

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

First Semester

Game Design and Development

PROFESSIONAL CONTEXT TECHNOLOGY AND COMMUNICATION METHODS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a core dynamic in game design?
   (a) Affordability (b) MDA
   (c) Circumspection (d) Orthogonality

2. What does "Alea" refer to in game mechanics'?
   (a) Strategy-based decisions
   (b) Randomness and chance
   (c) Role-playing elements
   (d) Skill-based interaction

3. Which of the following is a key element of game world design?
   (a) Mechanics
   (b) Common elements of successful worlds
   (c) Player taxonomy
   (d) Flow of influence

4. What is "Dynamic Game Balancing"?
   (a) Adjusting difficulty dynamically based on player performance
   (b) Balancing aesthetic elements of the game
   (c) Creating open-world mechanics
   (d) Designing linear plot structures

5. Which aspect is considered in Player Taxonomy?
   (a) Mechanics (b) Demographics
   (c) Game spaces (d) Strategy

6. What is "Tuning" in game design?
   (a) Adjusting mechanics to improve gameplay experience
   (b) Enhancing visual aesthetics
   (c) Balancing sound effects
   (d) Implementing new AI models

7. What is "The Loop of Interaction" in games?
   (a) A continuous cycle of gameplay and feedback
   (b) The connection between different characters
   (c) The interaction between players and developers
   (d) The process of world-building

8. Which of the following is a characteristic of "Emergence" in game mechanics?
   (a) Predetermined storyline
   (b) Player-driven mechanics evolving over time
   (c) Fixed level design
   (d) Restricted gameplay options

9. What is the primary function of "interest Curves" in game design?
   (a) To create engaging story arcs
   (b) To analyze player behavior
   (c) To optimize network interactions
   (d) To balance difficulty levels

10. What is "Ethics in Game Design" primarily concerned with?

(a) Ensuring fairness and incisively in gaming experiences

(b) Maximizing monetization strategies

(c) Creating complex game mechanics

(d) Enhancing visual aesthetics

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the evolution of games and their impact on modern media.

Or

(b) Discuss different game genres and their defining characteristics.

12. (a) Describe the social functions of games in modern society.

Or

(b) Explain how player interactions influence game dynamics.

13. (a) What are the essential elements of a successful game world?

Or

(b) Compare and contrast real vs. virtual architecture in game design.

14. (a) Discuss different game balancing methodologies.

Or

(b) Explain the importance of game mechanics in designing engaging experiences.

15. (a) Define player taxonomy and its relevance in game design.

Or

(b) Explain how ethical considerations impact game development.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the Mechanics, Dynamics and Aesthetics (MDA) framework in game design.

Or

(b) Discuss the role of tension maps in game design and their impact on player engagement.

17. (a) Examine the impact of narrative structures such as linear, braided and branching plots in game development.

Or

(b) Explain the significance of emergence and progression in game mechanics.

18. (a) Discuss the architectural and aesthetic considerations in designing game environments.

Or

(b) Explain the importance of balancing art and technology in game development.

19. (a) Analyze the role of dynamic game balancing in modern gaming experiences.

Or

(b) Discuss different factors that influence player experience in games.

20. (a) Evaluate the role of ethics in game design, with real-world examples.

Or

(b) Explain how player communities contribute to the success of a game.

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C–6162	Sub. Code 83415

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

First Semester

Game Design and Development

VISUALIZATION FOR GAMES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the vanishing point in perspective drawing?

   (a) The point where all parallel lines converge

   (b) The point where the horizon line meets the ground

   (c) The point where the object starts fading

   (d) The point from which the observer views the scene

2. Which of the following is true about linear perspective?

   (a) It is used for representing three-dimensional space on a flat surface

   (b) It is only used for landscape drawings

   (c) It does not rely on a vanishing point

   (d) It uses color contrast to show depth

3. What is the primary purpose of figure drawing?

(a) To study proportions and gestures of human figures

(b) To create realistic textures

(c) To focus on typography and text designs

(d) To paint landscapes

4. What does the term "line of action" refer to in figure drawing?

(a) The basic skeleton of a character

(b) The directional flow of the body in a pose

(c) The color scheme used in the figure

(d) The overall balance of the figure

5. Which of the following is NOT an element of design?

(a) Color (b) Texture

(c) Typography (d) Proportion

6. Which color scheme involves the use of colors that are opposite each other on the color wheel?

(a) Monochromatic (b) Analogous

(c) Complementary (d) Triadic

7. What is the primary goal when creating textures for a visual environment?

(a) To enhance color contrast

(b) To mimic realistic material surfaces

(c) To use only basic shapes

(d) To apply color blending techniques

8. In design fundamentals, what principle involves reducing complexity by simplifying shapes and forms?

(a) Visual composition

(b) Visual abstraction

(c) Color theory

(d) Gestalt principles

9. Which of the following best describes concept art in game design?

(a) It focuses on the technical aspects of game development

(b) It outlines the storyline of the game

(c) It is the process of designing the visual elements of the game world

(d) It deals with user interface design

10. What is the role of a storyboard in concept art and game design?

(a) To design the game's user interface

(b) To represent the visual layout of scenes and transitions

(c) To develop color schemes for the game

(d) To organize the level design

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the importance of linear perspective in creating depth in artwork.

Or

(b) Explain how aerial perspective differs from linear perspective in visual design.

12. (a) Describe the key elements involved in simplifying the human figure for gesture drawing.

Or

(b) Explain how the "stick figure" technique helps in understanding human anatomy.

13. (a) What are the primary principles of visual design and how do they contribute to effective communication?

Or

(b) Discuss the Gestalt principles and how they are applied in graphic design.

14. (a) What are the different types of textures used in visual designs and how do they influence the viewer's perception of an environment?

Or

(b) Explain the significance of scale and proportion in texture creation.

15. (a) How does concept art contribute to storytelling in game design?

Or

(b) Discuss the role of silhouette and environment sketching in developing a game world.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Elaborate on the different types of perspective views and their applications in creating realistic 3D environments.

Or

(b) Explain the process of constructing a linear perspective drawing and the role of horizon line and vanishing points in it.

17. (a) Discuss the importance of understanding proportions and balance in figure drawing for animation and character design.

Or

(b) Analyze the role of gesture drawing in capturing the movement and emotion of characters in a game.

18. (a) Discuss the principles of color theory, including the use of color harmony and contrast, in visual design.

Or

(b) Explain how color psychology influences the emotional impact of designs in game graphics.

19. (a) Examine the relationship between texture and the visual narrative in games. How can texture design enhance the player's immersive experience?

Or

(b) Discuss the application of texture in creating environments, using live references and real-world materials.

20. (a) Analyze the role of concept art in the pre-production phase of game design. How does it help in visualizing characters, environment and props?

Or

(b) Discuss the process of script writing and storyboarding in the development of a game's narrative and visual flow.

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C–6165	Sub. Code 83433

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Game Design and Development

GAME ENGINE – I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. In Unity, what are Prefabs used for?

   (a) To store reusable game objects that can be instantiated multiple times

   (b) To control character animations

   (c) To manage sound effects

   (d) To create lighting effects

2. What is the Console Window used for in game development?

   (a) To display real-time debugging information and logs

   (b) To adjust game lighting and shadows

   (c) To render 3D animations

   (d) To create UI elements.

3. Which collider type is best suited for approximating the shape of a complex 3D model while optimizing performance?

(a) Box Collider (b) Capsule Collider

(c) Mesh Collider (d) Sphere Collider

4. Which class is used for pathfinding and navigation in Unity?

(a) NavMeshAgent

(b) Animator

(c) Rigidbody

(d) MeshRenderer

5. Which property of a camera determines how much of the scene is visible?

(a) Field of View (FOV)

(b) Clipping Plane

(c) Lens Flare

(d) Render Texture

6. Which tool is commonly used to check for memory leaks in a game engine?

(a) Profiler

(b) Rigidbody

(c) Occlusion Culling

(d) Particle System

7. What is the function of the Instantiate() method in Unity?

(a) To destroy an object

(b) To create a new game object at runtime

(c) To handle sound effects

(d) To load scenes asynchronously

8. Which UI element is commonly used to display a player's health in a game?

(a) Dropdown Menu (b) Radio Button

(c) Progress Bar (d) Toggle Switch

9. What is the main purpose of LOD (Level of Detail) in game builds?

(a) To improve AI decision-making

(b) To optimize rendering by reducing detail on distant objects

(c) To handle in-game events

(d) To apply post-processing effects

10. In dialog handling, what is the main purpose of a dialog system?

(a) To display interactive text-based conversations in a game

(b) To optimize memory usage

(c) To handle AI pathfinding

(d) To replace all in-game UI elements

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define the key differences between 2D and 3D game development with examples.

Or

(b) Identify the key elements of terrain design in a 3D game environment.

12. (a) Define collision detection and explain its significance in 3D game development.

Or

(b) Identify various event-handling methods used in Unity scripting for input management.

13. (a) Define the key properties of a camera in 3D game development.

Or

(b) List different types of lighting techniques used in rendering a 3D scene.

14. (a) Define the basic components of a game UI layout and their functions.

Or

(b) List the key elements of a Heads-Up Display (HUD) and explain their importance.

15. (a) List different 2D game mechanics commonly used in platformers and sidescrolling games.

Or

(b) Identify the role of particle effects in enhancing game visuals.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain how screen dimensions impact the rendering of a 3D game.

Or

(b) Describe the process of converting screen positions to world positions in a 3D game.

17. (a) Explain how triggers work in Unity and how they differ from colliders.

Or

(b) Demonstrate how to implement raycasting for detecting objects in a 3D game.

18. (a) Explain how lens flare enhances the realism of a 3D game scene.

Or

(b) Describe how rendering to texture is used to create visual effects in 3D games.

19. (a) Explain the role of networking concepts in multiplayer games and how they impact performance.

Or

(b) Describe the process of spawning objects in a networked game and how it differs from local instantiation.

20. (a) Explain how basic AI mechanics like Finite State Machines (FSMs) help in controlling enemy behavior.

Or

(b) Illustrate the importance of audio and dialog systems in creating an immersive game experience.

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C–6166	Sub. Code 83435

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Third Semester

Game Design and Development

WEB GAME DEVELOPMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which property is used to control autoplay of an HTML5 video?

   (a) controls (b) autoplay

   (c) play (d) loop

2. Which of the following is NOT a media tag introduced in HTML5?

   (a) <audio> (b) <video>

   (c) <track> (d) <sound>

3. Which HTTP method is considered more secure for sending sensitive data in form handling?

   (a) GET (b) POST

   (c) SUBMIT (d) FETCH

4. How do you access the element at the second row and third column of a two-dimensional array *arr* in JavaScript?

   (a) arr[2][3] (b) arr[1][2]

   (c) arr[3][2] (d) arr[2,3]

5. Which of the following is NOT a JavaScript framework?

(a) React (b) Angular

(c) Laravel (d) Vue

6. Which method is commonly used for making API requests in JavaScript frameworks?

(a) fetch() (b) getData()

(c) httpReguest() (d) sendAPI()

7. Which property of the Canvas 2D context is used to set the color of the shapes drawn?

(a) strokeColor (b) fillStyle

(c) drawcolor (d) colorFill

8. What is a sprite sheet in game development?

(a) A collection of images stored in separate files

(b) A single image containing multiple frames of an animation

(c) A tool used to render 3D graphics

(d) A special type of HTML element for animations

9. Which of the following is NOT a key component of designing a game UI?

(a) Score display

(b) Health bars

(c) Web browser settings

(d) Buttons and menus

10. In a game UI, which component is commonly used to represent a player's remaining lives?

(a) A progress bar (b) A health bar

(c) A timer (d) A numerical counter

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) List five key differences between HTML4 and HTML5.

Or

(b) Define semantic tags in HTML5 and provide three examples.

12. (a) List five key differences between the GET and POST methods in form handling.

Or

(b) Define the concept of a callback function in JavaScript with an example.

13. (a) List five popular JavaScript frameworks used for web development and their primary use cases.

Or

(b) Define the term "web development framework" and explain its importance in modern web development.

14. (a) List the essential methods used in JavaScript to draw shapes on the Canvas.

Or

(b) Identify different types of collision detection techniques used in 2D games.

15. (a) Identify different types of mouse events used in game development and their functions.

Or

(b) Summarize the role of timers in a game and their effect on gameplay mechanics.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Describe the role of the <aside> tag and how it improves webpage structure.

Or

(b) Summarize the main features of HTML5 that enhance multimedia content integration.

17. (a) Explain how the Document Object Model (DOM) is structured and its significance in web development.

Or

(b) Describe how JavaScript handles one-dimensional and two-dimensional arrays with examples.

18. (a) Explain how API building enhances web applications and improves data communication.

Or

(b) Describe the differences between XML and JSON parsing in web development.

19. (a) Explain how the *requestAnimationFrame*() function is used for smooth animations in a Canvas game.

Or

(b) Summarize the process of handling keyboard events to control player movement in a Canvas-based game.

20. (a) Explain the purpose of event listeners in handling user interactions in games.

Or

(b) Examine the impact of real-time event handling on the performance and responsiveness of a game.

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C–6167	Sub. Code 83436

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Third Semester

Game Design and Development

DIGITAL MODELING – I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which tool allows adding new control points to an existing curve?

   (a) Insert Knot (b) Move Tool

   (c) Attach Curve (d) Reverse Direction

2. The "Move Seam" tool is primarily used for which type of object?

   (a) Polygons (b) NURBS Surfaces

   (c) Cameras (d) Lights

3. What is the function of the "Brail" tool in Maya?

   (a) It allows creating a surface using profile and two or more rail curves

   (b) It trims a NURBS surface

   (c) It is used to duplicate a NURBS patch

   (d) It projects a curve onto a surface

4. What does the "Bevel Plus" tool do when applied to a NURBS curve?

(a) It projects the curve onto a surface

(b) It creates a 3D surface with beveled edges from the curve

(c) It trims part of the curve

(d) It detaches the curve into two parts

5. Which file format is commonly used for Image-Based Lighting (IBL)?

(a) JPEG

(b) PNG

(c) HDR

(d) TIFF

6. What does a seamless UV map prevent in texture application?

(a) Stretching and distortion of the texture

(b) Increasing the polygon count

(c) Removing reflections from the model

(d) Automatic texture placement

7. What is the purpose of the "Attach Curve" tool in Maya?

(a) It joins two separate curves into one continuous curve

(b) It cuts a curve into multiple segments

(c) It converts a curve into a polygon mesh

(d) It removes knots from a curve

8. Which technique is most commonly used to model intricate details on a dagger or sword handle?

(a) Boolean Operations

(b) Extrude along a curve

(c) Texture Mapping

(d) Subdivision Surfaces

9. What is a key advantage of using sculpting tools in game asset creation?

(a) It automatically applies materials to the model

(b) It allows for organic and high-detail modeling

(c) It removes the need for UV unwrapping

(d) It makes models instantly game-ready without retopology

10. Which factor is most crucial when placing assets in a game environment?

(a) Random placement to make the scene look natural

(b) Using only prefabricated models

(c) Following level design and gameplay flow

(d) Placing assets without considering performance optimization

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define the purpose of the Perspective and Orthographic windows in Maya.

Or

(b) List the different view types available in Maya and explain their uses.

12. (a) List the different types of NURBS primitives in Maya and explain their basic functions.

Or

(b) Summarize the differences between "Attach" and "Detach" tools when working with NURBS curves and surfaces.

13. (a) Identify the role of UV unwrapping in vehicle texturing.

Or

(b) Describe the difference between a bump map and a normal map.

14. (a) List the key steps involved in modeling a weapon such as a dagger or sword.

Or

(b) Define the purpose of the EP Curve Tool in vehicle and weapon modeling.

15. (a) Demonstrate how to arrange assets effectively within a game environment to improve player experience.

Or

(b) Illustrate how modular asset creation can speed up the design process for large-scale environments.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain how object manipulation works in the Maya workspace.

Or

(b) Compare the functionality of the "Move Seam" and "Open/Close Curve" tools when working with NURBS curves.

17. (a) Explain how the "Birail" tool works and how it differs from "Loft" in surface creation.

Or

(b) Describe the function of the "Move Seam" tool and its effect on closed NURBS surfaces.

18. (a) Explain how UV unwrapping helps in applying realistic textures to a 3D vehicle model.

Or

(b) Summarize the process of Image-Based Lighting (IBL) and its impact on 3D rendering.

19. (a) Explain the importance of aligning reference images in Photoshop before modeling a weapon.

Or

(b) Summarize the significance of the "Move Seam" tool in refining 3D weapon models.

20. (a) Examine how the genre of a game affects asset placement and environmental storytelling.

Or

(b) Develop an optimized asset pipeline that ensures both high-quality visuals and performance efficiency in game environments.

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C–6170	Sub. Code 83446

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fourth Semester

Game Design and Development

MOBILE GAME DEVELOPMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which Java concept allows an object to take on multiple forms?

   (a) Encapsulation (b) Inheritance

   (c) Polymorphism (d) Abstraction

2. What is the primary use of the ArrayList class in Java?

   (a) To handle network connections

   (b) To create dynamic arrays

   (c) To manage thread synchronization

   (d) To handle input/output operations

3. In Java, what is the purpose of a wrapper class?

   (a) To manage network operations

   (b) To wrap primitive data types into objects

   (c) To handle file I/O

   (d) To perform mathematical operations

4. What is an abstract class in Java used for?

(a) To instantiate objects

(b) To provide a base class that cannot be instantiated

(c) To handle exceptions

(d) To perform complex calculations

5. In Android development, what is the role of a service?

(a) To manage user interface

(b) To handle long-running operations in the background

(c) To manage application resources

(d) To create graphical elements

6. Which Java class is used for mathematical operations such as square root and trigonometric functions?

(a) Math

(b) Util

(c) Array

(d) String

7. What is the purpose of the Runnable interface in Java?

(a) To manage arrays

(b) To handle multi-threading by defining a task

(c) To create graphical interfaces

(d) To manage data encryption

8. In game development, what is a Texture Atlas used for?

(a) To manage game states

(b) To optimize the rendering of multiple textures

(c) To handle input events

(d) To define game physics

9. What does a Gesture Listener do in game development?

(a) Manages game assets

(b) Handles touch gestures and input

(c) Manages game physics

(d) Sets up the game environment

10. What is the primary use of parallax scrolling in a game?

(a) To manage game logic

(b) To create an illusion of depth and movement

(c) To handle user inputs

(d) To manage game assets

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b)

11. (a) Discuss the significance of encapsulation and constructors in Java programming.

Or

(b) Explain the role of arrays and wrapper classes in handling data in Java applications.

12. (a) Describe the different types of inheritance in Java with suitable examples.

Or

(b) Discuss how multi-threading can be implemented using the Runnable interface and its advantages.

13. (a) Explain the key elements of a mobile operating system and their relevance to mobile game development.

Or

(b) Describe how emulators and build tools are used in the mobile development environment.

14. (a) Outline the steps involved in creating and importing assets into a game development project.

Or

(b) Discuss the importance of sprite rendering and camera setup in game development.

15. (a) Describe the implementation of particle effects and their role in enhancing game visual effects.

Or

(b) Explain the integration of a physics engine into a game and its impact on game play mechanics.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b)

16. (a) Analyze the role of object-oriented programming concepts such as inheritance and polymorphism in Java development.

Or

(b) Discuss the impact of exception handling and synchronization in building robust Java applications.

17. (a) Evaluate the advantages and challenges of using mobile platforms for game development, focusing on mobile OS components and development tools.

Or

(b) Discuss the role of UI management and input handling in creating effective mobile game applications.

18. (a) Explore the process of setting up a game project, including asset management and game class implementation.

Or

(b) Analyze the importance of viewport settings and sprite animation in developing interactive games.

19. (a) Discuss the implementation of particle effects and parallax scrolling in creating immersive game environments.

Or

(b) Evaluate the role of integrating a physics engine in game development and its effect on the realism of game physics.

20. (a) Analyze the challenges associated with screen transitions and sensor handling in game development.

Or

(b) Discuss the process of developing a complete game, focusing on gameplay programming, physics integration and level design.

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C–6173

Sub. Code
83451

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design And Development

GAME ENGINE — II

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which tool is used in a game engine to manipulate objects in terms of position, rotation, or scale?

   (a) Content Browser

   (b) Geometry Editing Tools

   (c) Transform Tools

   (d) BSP Surface Editor

2. What is Primitive Geometry primarily used for in a game engine?

   (a) Creating complex lighting

   (b) Adding basic 3D shapes like cubes and spheres

   (c) Importing custom meshes

   (d) Editing textures

3. Normal maps are used to:

(a) Simulate surface details without adding geometry

(b) Control material transparency

(c) Define color patterns on materials

(d) Create real-time reflections

4. Video textures in a game engine are:

(a) Static images applied to objects

(b) Animated textures created from video files

(c) Tools for sculpting terrains

(d) Used exclusively for cutscenes

5. Which of the following is NOT a Blueprint variable type?

(a) Boolean

(b) Vector

(c) String

(d) Texture Mapper

6. Gamepad inputs are configured in the engine using :

(a) Static mesh tools

(b) Material shaders

(c) Input key bindings in Blueprints or settings

(d) Audio master tracks

7. The Side Scroller Game Basic Mechanics primarily involve:

(a) Managing first-person camera angles

(b) Handling character movement on a 2D plane

(c) Adjusting particle effects in a 3D environment

(d) Creating destruction meshes for enemies

8. What does the Fuel System in a game track?

(a) The player's inventory items

(b) The health points of the player

(c) The resource consumed to perform specific actions, like flying

(d) The countdown timer for level completion

9. The purpose of a Crushing Pillar in a game level is to:

(a) Act as a decorative structure

(b) Display visual effects for particle systems

(c) Light the environment dynamically

(d) Create a dynamic obstacle for players

10. What is an Ability Popup Message used for in games?

(a) To trigger cinematic sequences

(b) To display the health bar status

(c) To notify players about a new ability or skill

(d) To pause the game automatically

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Provide an overview of the user interface of a game engine.

Or

(b) Discuss the purpose and functionality of transform tools in a game engine.

12. (a) Explain the purpose of decals and opacity masks in a game engine.

Or

(b) Describe the process and applications of vertex painting in a game engine.

13. (a) Discuss the process of setting up AI roaming and destinations.

Or

(b) Explain how to create a health system using Blueprints.

14. (a) Describe the concept of mesh emitters in Cascade.

Or

(b) Discuss the role of checkpoint systems in enhancing player experience.

15. (a) Discuss the implementation of crushing pillars in a game level.

Or

(b) Describe the purpose and implementation of ability popup messages.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Explain the role of primitive geometry in a game engine.

Or

(b) Explain the importance of the Content Browser in a game engine.

17. (a) Explain the importance of sound in game design.

Or

(b) Describe the process of integrating soundtracks into Matinee cinematic sequences.

18. (a) Discuss the process of creating HUD bindings.

Or

(b) Explain the process of animating UI elements using Unreal Motion Graphics.

19. (a) Explain the basic mechanics of a side scroller game. How are movement, physics, and interaction implemented to create a seamless experience?

Or

(b) Explain the role of pickup items in gameplay. How are they implemented to add depth and reward players?

20. (a) Explain the role of a death or game over screen in gameplay. How should it be designed to provide feedback and maintain player interest?

Or

(b) Explain how a battery mechanic can be implemented to limit flashlight usage. How does this feature add strategic elements to gameplay?

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C–6174	Sub. Code 83454A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design and Development

ARTIFICIAL INTELLIGENCE FOR GAMES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the level of the model in AI primarily concerned with?

   (a) The amount of data processed by the AI

   (b) The number of layers in neural networks

   (c) The hierarchy of the problem-solving process

   (d) The performance of the hardware running AI algorithms

2. Which of the following is a criterion for success in an AI problem-solving approach?

   (a) Maximizing computing power usage

   (b) Achieving a result within a reasonable amount of time and resources

   (c) Using the least number of input variables

   (d) Minimizing hardware requirements

3. Behavioral AI refers to AI that : _____

(a) Reacts to player actions based on pre-defined behaviors

(b) Strictly follows a linear set of tasks

(c) Always performs random actions without any patterns

(d) Refuses to interact with the player

4. What is the main function of a Grid-Based Canvas in AI design?

(a) To calculate the player's health

(b) To allow AI to navigate and make decisions based on grid data

(c) To track the player's movements

(d) To display all AI behaviors on the screen

5. Fuzzy Logic is a technique used in game AI to :

(a) Create deterministic behavior with strict rules

(b) Generate random paths for NPCs to follow

(c) Optimize game graphics and performance

(d) Deal with uncertainty and approximate reasoning rather than binary true/false decisions

6. A Rule-Based System in game AI is based on :

(a) AI making decisions randomly based on chance

(b) A series of condition-action pairs that dictate AI behavior

(c) AI making decisions based on evolutionary traits

(d) AI learning from player actions through reinforcement

7. Fuzzy reasoning is useful in AI because :

(a) It provides exact answers based on clear rules

(b) It computes exact probabilities for uncertain events

(c) It handles uncertainty and imprecision by allowing degrees of truth

(d) It generates deterministic outcomes based on available data

8. Certainty factors in AI are used to :

(a) Measure how confident a system is in its conclusions

(b) Represent the relationship between actions and their consequences

(c) Organize information in a frame-based system

(d) Perform optimization in rule-based systems

9. Heuristics in expert systems are primarily used to :

(a) Store vast amounts of data in an optimized format

(b) Process large-scale calculations with minimal human input

(c) Make educated guesses to find solutions to complex problems

(d) Perform exact mathematical computations for decision-making

10. The architecture of an expert system typically includes all of the following components except :

(a) Knowledge base (b) Inference engine

(c) User interface (d) Quantum processor

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the various techniques used in Artificial Intelligence.

Or

(b) Explain the different levels of AI models and how they impact problem-solving.

12. (a) Discuss the concept of Chasing AI and how it enhances gameplay.

Or

(b) Describe the behavior and purpose of Evading AI in a game.

13. (a) Discuss Rule-Based Systems in game AI.

Or

(b) Explain how Finite State Machines (FSM) are used in game AI.

14. (a) Compare and contrast backward chaining and forward chaining as methods of inference in AI.

Or

(b) Describe the rule-value approach in Al and how it helps guide decision-making in knowledge-based systems.

15. (a) Describe the key components of the architecture of expert systems.

Or

(b) Explain how heuristic search is used in expert systems to navigate problem spaces.

Part C

$(5 \times 8 = 40)$

Answer **all** questions, choosing either (a) or (b).

16. (a) Identify and explain some common issues that arise in the design of search programs. How can these issues affect the efficiency and effectiveness of AI problem-solving?

Or

(b) Explain how the complexity of a problem space influences the computational resources required for AI search. What strategies can be employed to handle large and complex problem spaces?

17. (a) Describe the process of creating Strategic AI for a game.

Or

(b) Explain the concept of Backtracking AI in games. Why would developers choose to implement backtracking behavior, and how does it influence the overall game mechanics and difficulty?

18. (a) Discuss the role of Patterning and Waypoint Navigation in game AI.

Or

(b) Describe the concept of Chasing and Evading AI.

19. (a) Define fuzzy reasoning and explain how it is used in AI to handle uncertainty and imprecision.

Or

(b) Describe a Bayesian network and how it models uncertain knowledge using probabilistic dependencies.

20. (a) Compare heuristic-based approaches and exact algorithms in the context of expert systems.

Or

(b) Describe the process of combining various AI techniques to produce intelligent agents.

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C–6175	Sub. Code 83454B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Game Design and Development

SHADER PROGRAMMING

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which shader is used to manipulate the shapes of geometric primitives such as triangles or points?

   (a) Vertex Shader

   (b) Fragment Shader

   (c) Geometry Shader

   (d) Tessellation Shader

2. What does GLSL stand for in the context of shaders?

   (a) General Lighting Shading Language

   (b) Global Lighting System Language

   (c) Graphics Language for Shading and Lighting

   (d) Open GL Shading Language

3. What does shader compilation involve?

(a) Converting GLSL code into a format that can be read by the CPU

(b) Converting GLSL code into machine code that can be executed by the GPU

(c) Writing shader code in high-level language

(d) Compiling textures for rendering

4. What is the primary purpose of using shaders in animations?

(a) To animate the camera

(b) To apply physical simulations on objects

(c) To calculate pixel colors for objects in motion

(d) To convert 3D models into 2D projections

5. Which material property affects how light interacts with a surface in rendering?

(a) Light intensity (b) Surface reflectivity

(c) Surface normal (d) Surface texture

6. What is the primary purpose of surface normals in lighting calculations?

(a) To calculate the intensity of the light

(b) To create shadows on a surface

(c) To determine the reflection of light on a surface

(d) To control the color of the light source

7. What is the purpose of cube maps in 3D rendering?

(a) To simulate reflections and environment mapping

(b) To wrap textures around spherical objects

(c) To control the transparency of objects

(d) To store textures in a compressed format

8. What is the role of a projected texture in 3D graphics?

(a) To apply a texture based on direction

(b) To project a texture onto a 3D object from a specific point of view, like a spotlight

(c) To wrap a texture around complex geometries

(d) To create normal maps for intricate details

9. What is the purpose of a bump map in 3D graphics?

(a) To add a shiny effect to a surface

(b) To control the transparency of the material

(c) To simulate small surface details like bumps or wrinkles without modifying the geometry

(d) To change the shape of the 3D model's vertices

10. What is the primary function of a mesh shader in 3D graphics?

(a) To handle the lighting and shadow effects

(b) To process vertex data for rendering

(c) To define the texture mapping on 3D models

(d) To simulate dynamic effects like explosions

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the characteristics of GLSL, its integration with the OpenGL API, and how it compares to other shading languages such as HLSL or Cg.

Or

(b) Explain how vertex shaders transform vertex data, including its input and output, and their role in manipulating the geometry of 3D models.

12. (a) What is the role of algorithmic drawing in shader programming, and how does it contribute to creating dynamic visual effects in a 3D scene?

Or

(b) Explain how matrices are used in shader programming to transform and manipulate 3D objects.

13. (a) What are light normals, and how do they differ from surface normals in a lighting system?

Or

(b) Describe the function of a spotlight in a 3D scene. How is it different from other types of light sources.

14. (a) Discuss the different types of texture objects in 3D graphics.

Or

(b) Explain the purpose of normal maps in 3D rendering.

15. (a) What is gamma correction in the context of image rendering? How does it adjust the brightness and contrast of an image.

Or

(b) Explain how smoothing algorithms work in 3D graphics.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss how fragment shaders calculate and output pixel colors based on input data, including how lighting models, textures, and blending operations influence the final appearance.

Or

(b) Explain how the graphics pipeline evolved from fixed-function stages to programmable shaders, highlighting the advantages of using shaders over the older pipeline approach.

17. (a) Discuss the concept of depth buffering in graphics programming. How does it work, and why is it necessary for rendering 3D scenes correctly?

Or

(b) Describe how depth buffering interacts with shaders during the rendering process. How do shaders utilize depth data to properly render objects in 3D space?

18. (a) Explain how does cartoon shading work to create stylized visuals in 3D games and animations?

Or

(b) Discuss the impact of different shading models (e.g., Phong, Lambertian) on how light interacts with materials.

19. (a) Describe the differences between bump maps, normal maps, and displacement maps.

Or

(b) What role does image-based lighting play in the creation of realistic environmental effects in 3D graphics? Explain how HDR images and environment maps are used in this technique to simulate realistic light interaction.

20. (a) Discuss the role of mesh shaders in the graphics pipeline, their advantages over traditional vertex and fragment shaders.

Or

(b) Explain how reflection maps work, the types of reflection maps used in rendering.

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C–6176	Sub. Code 83454C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Game design and Development

CINEMATICS IN GAMES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What does the term "digital media tools" refer to?
   (a) Software used for creating and editing content
   (b) The physical hardware used for media production
   (c) The techniques used in traditional art forms
   (d) The content distribution methods only

2. What is a key principle of visual design in digital media?
   (a) Prioritizing content readability over aesthetic appeal
   (b) Using only black-and-white colors for simplicity
   (c) Creating a balanced composition using elements like color, space and form
   (d) Focusing exclusively on text-based elements

3. In video editing, what does it mean to "assemble" clips?
   (a) To adjust audio levels
   (b) To arrange clips in a logical sequence
   (c) To remove unnecessary clips
   (d) To apply a color grade to clips

4. Which of the following tools is commonly used for trimming video clips in most video editing software?

(a) Magic wand tool (b) Pen tool

(c) Crop tool (d) Razor tool

5. Which audio element is commonly adjusted to ensure a consistent listening experience in a recording?

(a) Tempo (b) Pitch

(c) Volume (d) Length

6. What is the primary function of audio editing tools?

(a) To add visual effects

(b) To adjust the speed of a video

(c) To manipulate, clean, and enhance audio recordings

(d) To convert audio to video

7. Which type of graphic design software is commonly used for creating vector-based designs?

(a) Adobe Photoshop (b) Adobe Illustrator

(c) Final Cut Pro (d) Adobe Premiere Pro

8. Which of the following is one of the key principles of animation?

(a) Repetition

(b) Consistency in size and position

(c) Timing and movement of objects

(d) Reducing color saturation

9. Which of the following is considered an advanced video editing technique?

(a) Applying basic filters

(b) Cutting and trimming video

(c) Adjusting video brightness

(d) Using motion tracking to follow moving objects

10. Which of the following is an important consideration when planning a digital media project?
    (a) Selecting the soundtrack first
    (b) Creating a detailed project timeline and milestones
    (c) Using only one type of media format
    (d) Choosing the cheapest software available

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of digital media production in modern communication.

Or

(b) Describe the basic principles of visual design in digital media.

12. (a) Describe the role of a video editing timeline.

Or

(b) Analyze the effect of transitions in video editing.

13. (a) Describe the process of cleaning an audio recording.

Or

(b) Describe how background music can enhance an audio recording.

14. (a) Describe the fundamental principles of animation.

Or

(b) Examine the process of incorporating animations into videos.

15. (a) Discuss the role of advanced video editing techniques in enhancing the quality of a final project.

Or

(b) Explore the concept of "layering" in video editing.

Part C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the concept of interactivity in digital media.

Or

(b) Identify and explain the key digital media software tools that are commonly used in video and audio production.

17. (a) Explain how video editing software helps to streamline the editing process.

Or

(b) Examine the process of adding and manipulating video layers.

18. (a) Explain the significance of reverb and echo effects in audio editing.

Or

(b) Explain the concept of automation in audio editing.

19. (a) Explore the concept of motion graphics in video production.

Or

(b) Examine the role of graphic design software in the creation of digital content.

20. (a) Explain how time management and scheduling contribute to the successful execution of a digital media project.

Or

(b) Discuss the importance of a detailed pre-production plan in a digital media project.

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C–6178

Sub. Code
83455A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Game Design and Development

EMERGING TRENDS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is NOT a goal of Virtual Reality (VR)?

   (a) Creating immersive experiences

   (b) Enhancing 2D interfaces

   (c) Simulating real-world environments

   (d) Enabling sensory feedback

2. What does Pitch' refer to in VR transformation?

   (a) Horizontal rotation

   (b) Vertical rotation

   (c) Diagonal rotation

   (d) Side-to-side movement

3. What is a Quaternion used for in VR?

(a) Eye tracking

(b) Representing rotations

(c) Image processing

(d) Mapping environments

4. What is the role of the viewport transformation?

(a) Mapping 2D images to 3D objects

(b) Converting real-world visuals into pixels

(c) Transforming 3D coordinates into 2D screen space

(d) Adjusting brightness levels in VR displays

5. Which phenomenon explains the bending of light?

(a) Reflection (b) Refraction

(c) Diffusion (d) Absorption

6. What is SIFT primarily used for in AR systems?

(a) Data communication

(b) Feature extraction

(c) Networking

(d) Cloud storage

7. What type of tracking does hybrid AR rely on?

(a) Camera-based tracking only

(b) Sensor-based tracking only

(c) A combination of camera and sensor tracking

(d) Manual tracking

8. What is the primary role of Machine-to-Machine communication in IoT?

(a) Human-computer interaction

(b) Autonomous device communication

(c) Wireless charging of devices

(d) Data encryption

9. What does BCI stand for?

(a) Brain Computer Interface

(b) Biometric Connection Interface

(c) Binary Communication Infrastructure

(d) Brain Circuit Integration

10. What is the 'Smart Grid' associated with in IoT?

(a) Enhanced gaming experiences

(b) Efficient energy management

(c) Improved wireless networks

(d) Advanced virtual reality systems

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the role of geometric modeling in Virtual Reality.

Or

(b) Describe the concepts of pitch, yaw, and roll in VR transformation.

12. (a) What are Quaternions, and how are they used in VR applications?

Or

(b) Discuss the importance of homogeneous transformations in VR.

13. (a) Explain the three interpretations of light in the context of emerging technologies.

Or

(b) How does motion perception influence VR experiences?

14. (a) What are the main differences between SIFT and SURF techniques in AR?

Or

(b) Explain the process of image acquisition and feature extraction in AR.

15. (a) Describe the role of sensor networks in IoT.

Or

(b) Discuss the potential applications of BCI in neuro-gaming.

Part C

(5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the evolution of VR hardware and its role in creating immersive experiences.

Or

(b) Explain how sensation and perception are critical in designing VR environments.

17. (a) Describe the concept of canonical view and its application in VR.

Or

(b) Explain the complete process of viewport transformation and its significance.

18. (a) How does orientation tracking enhance the user experience in VR? Provide examples.

Or

(b) Analyze the challenges of depth perception and its impact on motion tracking in VR.

19. (a) Discuss the classification of AR based on sensor, vision, and hybrid tracking.

Or

(b) Explain the geometric verification process in AR and its importance in feature matching.

20. (a) Describe the role of IoT in the development of smart grids and its impact on energy management.

Or

(b) Analyze the importance of data handling and analytics in IoT-enabled sensor clouds.

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C–6179

Sub. Code
83455B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design and Development

LEVEL DESIGN

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a core principle in Player-Centric Level Design?

   (a) Designer's preference

   (b) Fast development

   (c) Player experience

   (d) Random generation

2. In game design. which concept helps in maintaining a smooth difficulty curve?

   (a) Random challenges

   (b) Flow and pacing

   (c) Fixed levels

   (d) Unbalanced mechanics

3. Which element is crucial for balancing scale in level design?

(a) Character animation

(b) Soundtrack

(c) Proportions and spacing

(d) Game credits

4. Which term refers to the use of visual elements like lighting to guide the player?

(a) Environmental storytelling

(b) Static gameplay

(c) Procedural modeling

(d) Code optimization

5. Which method enhances narrative engagement in environmental storytelling?

(a) Skipping cutscenes

(b) Using hidden props and clues

(c) Speedrunning mechanics

(d) Simplified textures

6. Mood and atmosphere in level design are mainly influenced by

(a) High-resolution textures

(b) Narrative length

(c) Lighting and audio cues

(d) Cheat codes

7. Which term refers to the moment-to-moment actions players perform in a game?

(a) Cutscenes (b) Mechanics

(c) Resolution (d) Credits

8. Feedback in gameplay mainly serves to:

(a) Confuse the player

(b) Provide debugging tools

(c) Inform and reward players

(d) Delay progression

9. What is the primary purpose of rapid prototyping in level design?

(a) Finalizing graphics

(b) Quickly testing gameplay ideas

(c) Marketing the game

(d) Localizing the game

10. A good level design portfolio should ideally

(a) Include raw code

(b) Display only screenshots

(c) Highlight design process and iterations

(d) Be a single-page resume

Section B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Define 'Flow' in level design and explain its importance in creating engaging game levels.

Or

(b) Describe the concept of 'Difficulty Curve' and how it affects player motivation.

12. (a) Explain how real-world design concepts like balance and rhythm can be applied in level layout.

Or

(b) Discuss the significance of the "Three-Act Structure" in pacing a game level.

13. (a) What is environmental storytelling? Discuss with suitable examples from games.

Or

(b) How do hidden elements in game levels contribute to narrative depth?

14. (a) Explain the relationship between challenges, feedback, and rewards in gameplay mechanics.

Or

(b) Discuss how pacing influences player engagement during gameplay.

15. (a) Describe the role of play testing in level design iteration.

Or

(b) What are the key components of an effective game design portfolio?

Section C (5 × 8 = 40)

Answer **all** questions, choosing either (a) or (b).

16. (a) Discuss the evolution of level design from early games to modern gaming. Provide examples to illustrate your answer.

Or

(b) Analyze the importance of player-centric design in the success of modern games.

17. (a) With examples, explain how lighting and color schemes influence mood and player navigation in games.

Or

(b) Elaborate on the importance of spatial design in maintaining player interest and guiding game progression.

18. (a) Describe the methods used to create engaging narratives through environment design. Support your answer with examples.

Or

(b) Analyze the impact of mood and emotion on the overall player experience in level design.

19. (a) Critically evaluate how game mechanics and interactivity enhance user engagement. Provide examples.

Or

(b) Explain the significance of balancing in gameplay and discuss techniques used to achieve it.

20. (a) Explain the steps involved in rapid prototyping and its role in refining game levels.

Or

(b) Discuss the essential components of a professional game design portfolio with examples.

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C–6180

Sub. Code
83455C

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design and Development

GAME PSYCHOLOGY

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following best describes game psychology?
   (a) Study of graphics in games
   (b) Study of player behavior and motivations
   (c) Study of coding techniques
   (d) Study of game marketing

2. Who among the following is known for establishing Player Types theory?
   (a) Carl Jung (b) Richard Bartle
   (c) Sigmund Freud (d) Jean Piaget

3. Which of the following is an example of intrinsic motivation in games?
   (a) Daily login rewards
   (b) Leveling up through exploration
   (c) Free in-game currency
   (d) Limited time events

4. Gamification primarily focuses on :
   (a) Story writing
   (b) Applying game mechanics to non-game contexts
   (c) Improving game graphics
   (d) Enhancing voice acting

5. Which design element contributes most directly to emotional storytelling?
   (a) Game trailers
   (b) User interface
   (c) Narrative arcs and character development
   (d) Bug reports

6. In virtual reality, the sense of being "inside" the game world is called :
   (a) Animation (b) Presence
   (c) Resolution (d) Speed run

7. Which aspect enhances social dynamics in online multiplayer games?
   (a) Solo challenges
   (b) Leader boards and team-based goals
   (c) Single-player story mode
   (d) Offline levels

8. Online gaming communities require :
   (a) Daily bug updates
   (b) Strong moderation and community guidelines
   (c) Endless gameplay hours
   (d) Free-to-play access

9. Which of the following relates to balancing engagement and well-being?
   (a) Making games addictive
   (b) Using loot boxes frequently
   (c) Setting reasonable session lengths
   (d) Removing all rewards

10. Artificial Intelligence in modern games is mainly used to :
    (a) Increase loading times
    (b) Enhance adaptive game play
    (c) Slow down progress
    (d) Replace graphics designers

Part B

$(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain how psychological principles are used to increase player engagement in games.

    Or

    (b) Discuss any two player types and their significance in game design.

12. (a) Explain the difference between intrinsic and extrinsic motivation in game design with examples.

    Or

    (b) Discuss the role of progression systems in sustaining player interest.

13. (a) How do graphics and sound contribute to emotional engagement in games?

    Or

    (b) Explain how virtual reality enhances player immersion.

14. (a) Discuss how social features influence player behavior in multiplayer games.

    Or

    (b) Describe the key components in managing online gaming communities.

15. (a) Explain the ethical challenges game designers face in maintaining player wellbeing.

    Or

    (b) Discuss the role of artificial intelligence in shaping future game design.

Part C

$(5 \times 8 = 40)$

Answer **all** questions, choosing either (a) or (b).

16. (a) Analyze the importance of player psychology in modern game development, providing suitable examples.

Or

(b) Discuss the impact of understanding player motivations on designing successful games.

17. (a) Explain how gamification techniques can be used in non-game environments like education or health.

Or

(b) Evaluate the effectiveness of reward systems in games with relevant case studies.

18. (a) Discuss the role of storytelling in creating emotionally engaging game experiences. Support with examples.

Or

(b) Analyze the methods used to create immersive game environments.

19. (a) Critically examine the social aspects of multiplayer games and their effects on player behavior.

Or

(b) Discuss ethical considerations in designing online multiplayer experiences.

20. (a) Discuss how emerging technologies like VR and AI are shaping the future of game psychology and design.

Or

(b) Explain with examples how balancing engagement and ethical considerations can lead to healthier gaming experiences.

C–6188	Sub. Code 83451

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025.

Fifth Semester

Game Design And Development

GAME ENGINE - II

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the purpose of a game engine?

2. Describe the function of the content browser.

3. How do height maps enhance game terrain?

4. What are decals and how are they used in games?

5. Explain the basics of blueprint classes.

6. What is a HUD in game development?

7. What is the role of a checkpoint system in games?

8. How does the speed boost ability affect gameplay?

9. Describe the process of creating an enemy bot AI.

10. What is the purpose of a flashlight in game levels?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the steps involved in importing custom static meshes.

Or

(b) Explain the basics of landscape editing in a game engine.

12. (a) Describe the use of matinee for creating cinematic scenes.

Or

(b) How do particle systems enhance visual effects in games?

13. (a) Explain the process of setting up AI roaming and destinations.

Or

(b) How is UI animation created using UMG?

14. (a) Discuss the mechanics of a side scroller game.

Or

(b) Explain how the health and fuel systems work in gameplay.

15. (a) Describe the process of blocking out a game level.

Or

(b) How are structural meshes used to decorate game levels?

Part C (3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Evaluate the importance of lighting and materials in game design.

Or

(b) Discuss the impact of importing and using terrain materials.

17. (a) Analyze the role of blueprints in game development.

Or

(b) Describe how to create a main menu with gamepad inputs.

18. (a) Explain the development of player abilities and their impact on gameplay.

Or

(b) Discuss the use of animated popups and their role in enhancing user experience.

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C–6189

Sub. Code
83454

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design and Development

ARTIFICIAL INTELLIGENCE

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is artificial intelligence and its main goals?

2. Define a state space search in AI.

3. What is roaming AI in games?

4. Explain the importance of strategic AI in gaming.

5. Describe deterministic AI.

6. What is the A* algorithm used for?

7. Define backward chaining in knowledge representation.

8. What are certainty factors?

9. What is the architecture of expert systems?

10. Explain the role of heuristics in AI.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the criteria for success in AI modeling.

Or

(b) Explain the characteristics of a production system in AI.

12. (a) Describe how to create strategically AI in games.

Or

(b) Compare game AI and traditional AI, highlighting advantages and disadvantages.

13. (a) Analyze the use of fuzzy logic in AI systems.

Or

(b) Explain the role of genetic algorithms in game AI.

14. (a) Discuss the frame-based system in knowledge representation.

Or

(b) How does Bayesian theory apply to AI?

15. (a) Describe the process of knowledge acquisition in expert systems.

Or

(b) What is the future of strategic AI in games?

Part C

(3 × 10 = 30)

Answer **all** questions, choosing either (a) or (b).

16. (a) Evaluate the challenges and solutions in designing search programs for AI.

Or

(b) Discuss the role of problem spaces in AI development.

17. (a) Explain the considerations for using pathfinding techniques in game AI.

Or

(b) Analyze the application of artificial neural networks in AI systems.

18. (a) Discuss the integration of AI techniques to produce intelligent agents.

Or

(b) Describe the impact of expert systems on various industries.

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C–6193

Sub. Code
83455 (A)

B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

Fifth Semester

Game Design and Development

EMERGING TRENDS

(2019 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the significance of geometric modeling in VR?
2. How are matrices used in pitch, yaw and roll?
3. Explain the concept of homogeneous transformations.
4. What is the purpose of viewport transformation?
5. Describe lens aberrations and their effects.
6. How does motion perception work in VR?
7. What are the main types of AR tracking classifications?
8. Explain the SIFT feature extraction technique.
9. Define actuation in the context of IoT.
10. What is the smart grid in IoT?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) How does birds-eye view hardware enhance VR experiences?

Or

(b) Discuss the role of sensation and perception in VR.

12. (a) Explain the process and importance of eye transforms in VR.

Or

(b) Describe canonical view transformation and its applications.

13. (a) Discuss the role of orientation tracking in VR systems.

Or

(b) How does the perspective n-point problem affect VR?

14. (a) Explain the process of feature matching and its challenges in AR.

Or

(b) Compare SIFT and SURF techniques in AR applications.

15. (a) Analyze the communication protocols used in IoT for effective networking.

Or

(b) Discuss the potential of neuro gaming in enhancing user interaction.

Part C

(3 × 10 = 30)

Answer **all** questions choosing either (a) or (b).

16. (a) Discuss the impact of VR technologies on geometric transformations and user interaction.

Or

(b) Evaluate the importance of transformation matrices in VR design.

17. (a) Analyze how filtering techniques improve tracking accuracy in VR.

Or

(b) Discuss the importance of depth and motion perception in creating immersive VR environments.

18. (a) Evaluate the role of IoT in advancing sensor cloud technology and its applications.

Or

(b) Describe the integration and impact of BCI in modern gaming and technology.

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