C–5425	Sub. Code 83711

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Game Technology

ADVANCED GAME DEVELOPMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. What term refers to the study of human interaction with computers and digital technologies?

   (a) Human-Computer Interaction

   (b) Game Design

   (c) New Media Theory

   (d) Interactive Communication

2. What are the three core elements of the MDA framework in game design?

   (a) Mechanics, Dynamics, Algorithms

   (b) Movement, Development, Analysis

   (c) Mechanics, Dynamics, Aesthetics

   (d) Motion, Design, Action

3. What term refers to the structured sequence of events in a game's narrative?

(a) Dramatic Elements

(b) Linear Plot

(c) Open Worlds

(d) Channels of Information

4. Which type of game plot allows for multiple storylines and outcomes based on player choices?

(a) Linear Plot

(b) Braided Plot

(c) Branching Tree

(d) Networks

5. What term refers to the organization and structure of game spaces within a virtual environment?

(a) Transmedia

(b) Level Design

(c) Architecture

(d) Aesthetics

6. What aspect of game design involves balancing the artistic elements with technological constraints?

(a) Game Characters

(b) World Aesthetics

(c) Audio of Environment

(d) Real vs. Virtual Architecture

7. What term refers to the player's emotional and cognitive involvement with a game?

(a) Player's Experience

(b) Game Mechanics

(c) Interest Curves

(d) Dynamic Game Balancing

8. Which aspect of game design focuses on creating a sense of challenge and progression for the player?

(a) Modeling

(b) Focusing

(c) Judgement

(d) Skill

9. What is the purpose of understanding player taxonomy in game design?

(a) To limit player interactions

(b) To create stronger player communities

(c) To discourage diversity among players

(d) All of the above

10. Which aspect of game design involves the flow of influence among players?

(a) Taxonomy of Players

(b) Player Interactions

(c) Dynamics of Player Taxonomy

(d) Demographics

Part B (5 × 5 = 25)

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

11. (a) Define interactive and new media and discuss their impact on modern communication.

Or

(b) Discuss the ethics of new media, highlighting key considerations for designers and developers.

12. (a) Explain the social function of games and how they facilitate interaction and communication among players.

Or

(b) Discuss the concept of the loop of interaction in gameplay and its role in player engagement.

13. (a) Describe the properties of a game world and identify common elements of successful game worlds.

Or

(b) Discuss the importance of architecture in organizing game space and creating immersive environments.

14. (a) Define player experience and discuss how modeling, focusing, and empathizing contribute to it.

Or

(b) Describe various game mechanics such as space, objects, attributes, actions, and rules.

15. (a) Explain the taxonomy of players and how the balance of player types can impact game design.

Or

(b) Discuss the dynamics of player taxonomy, including demographics and psychographics.

Part C

$(5 \times 8 = 40)$

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

16. (a) Explain the fundamentals of human-computer interaction (HCI) and its role in game design.

Or

(b) Define basic terminologies related to game design, such as mechanics, dynamics, and aesthetics (MDA).

17. (a) Describe the dramatic elements of games and discuss different methods for structuring game narratives.

Or

(b) Explain the concept of open worlds in game design and discuss their advantages and challenges.

18. (a) Identify common elements of successful game worlds and explain their significance in player engagement.

Or

(b) Describe the role of architecture in organizing game spaces and differentiate between real and virtual architecture.

19. (a) Describe the process of modeling player experiences and discuss techniques for focusing player attention.

Or

(b) Explore various methodologies for balancing game economics and maintaining dynamic game balance.

20. (a) Discuss ethical considerations in game design, including ergodisc, code, and other laws governing computer game design.

Or

(b) Describe the role of player communities in fostering strong player engagement and loyalty.

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C–5426	Sub. Code 83712

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Game Technology

ADVANCED GAME DESIGN AND ANALYSIS

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. What is the core of game design that involves creating rules and structures to facilitate player interaction?

   (a) Game mechanics

   (b) Game state

   (c) Iterative design

   (d) Constraints

2. Which term refers to the smallest unit of a game that has meaning and function within the game system?

   (a) Game state

   (b) Players

   (c) Game atoms

   (d) Puzzle design

3. What role does chance play in game mechanics?

(a) It determines the skill level required to play the game

(b) It introduces randomness and unpredictability into gameplay

(c) It dictates the overall theme of the game

(d) It governs the structure of the game state

4. What term refers to the evaluation of a player's decisions and actions in a game?

(a) Strategy (b) Tactics

(c) Evaluation (d) Challenge

5. What are the types of intellectual property (IP) commonly associated with games?

(a) Copyright, Trademark, and Patent

(b) Sequels, Target Market, and Focus Groups

(c) Story Arcs, Setting, and Character

(d) Learning Unfamiliar Genre, Games to Tell Stories, and Storytelling Methods

6. How do focus groups contribute to understanding the target market in game development?

(a) By creating sequels

(b) By learning unfamiliar genres

(c) By gathering feedback from potential players

(d) By designing story arcs

7. What is a common issue in multiplayer game design?

(a) Sequels

(b) Removing Mechanics

(c) Slowing the Speed

(d) Feedback in UI design

8. What are propagation mechanics commonly associated with in social network games?

(a) Adding Mechanics

(b) Multiplayer Games

(c) Casual Games

(d) Target Market

9. What are the primary goals of user interface (UI) design in games?

(a) Adding Mechanics and Multiplayer

(b) Sequels and Target Market

(c) Goals of UI and Feedback

(d) Storytelling Methods and Setting

10. What is a characteristic of bad UI design in games?

(a) Creating a User Interface

(b) Focusing on the Mass Market

(c) Reduced Complexity

(d) Slowing the Speed

Part B (5 × 5 = 25)

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

11. (a) Define game design and explain its core components.

Or

(b) Describe the iterative design approach in game development.

12. (a) Explain the role of chance in game mechanics and gameplay.

Or

(b) Discuss the importance of evaluation in measuring player skill and progress.

13. (a) Identify and explain the different types of intellectual property (IP) associated with games.

Or

(b) Explain the importance of targeting a specific market in game design.

14. (a) Describe the process of adding and removing mechanics in game design.

Or

(b) Discuss the types of multiplayer games and their characteristics.

15. (a) Define the goals of user interface (UI) design in game development.

Or

(b) Describe the process of designing and modifying games for educational purposes.

Part C $(5 \times 8 = 40)$

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

16. (a) Explain common terms used in game design, such as mechanics, dynamics, and goals.

Or

(b) Discuss the concept of constraints in game design and how they influence the creative process.

17. (a) Discuss the mechanics of strategic skill and how players make decisions based on strategic considerations.

Or

(b) Explain the concept of strategy versus tactics in game design and provide examples of each.

18. (a) Identify and describe different types of IP commonly associated with the gaming industry.

Or

(b) Discuss the importance of targeting a specific market in game development and strategies for learning about the target market.

19. (a) Explain the significance of making games multiplayer and multiplatform.

Or

(b) Discuss the importance of balancing speed and pacing in multiplayer game design.

20. (a) Discuss the process of designing and modifying games for educational purposes, including serious games.

Or

(b) Discuss the concept of casual games and how they differ from traditional video games.

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C–5427

Sub. Code
83713

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Game Technology

GAME CONCEPTUALIZATION

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which term refers to the imaginary line in perspective drawing representing the viewer's eye level?
   (a) Picture plane (b) Vanishing point
   (c) Station point (d) Horizon line

2. What does a vanishing point represent in linear perspective?
   (a) The point where all lines converge and disappear
   (b) The point where the horizon meets the ground
   (c) The point where objects appear smallest
   (d) The point where objects are closest to the viewer

3. What is the primary purpose of gesture drawing in figure drawing?
   (a) To create detailed portraits
   (b) To capture the overall movement and rhythm of the figure
   (c) To focus on individual body parts
   (d) To add texture and shading to the drawing

4. How are body parts simplified in figure drawing?
   (a) By adding intricate details
   (b) By breaking them down into basic shapes
   (c) By using only straight lines
   (d) By avoiding proportions

5. What are the characteristics of a good design?
   (a) Complexity and clutter
   (b) Lack of balance and harmony
   (c) Simplicity and clarity
   (d) Confusion and ambiguity

6. Which of the following is NOT an element of design?
   (a) Line (b) Color
   (c) Texture (d) Time

7. What is the primary purpose of textures in visual design?
   (a) To create smooth surfaces
   (b) To add complexity to designs
   (c) To convey a sense of touch or feel
   (d) To eliminate depth and dimension

8. How do textures contribute to understanding scale and proportion in design?
   (a) By adding uniformity to designs
   (b) By providing context and reference points
   (c) By removing depth and dimension
   (d) By creating confusion and ambiguity

9. What is the primary purpose of concept art in the creative process?
   (a) To create final artworks
   (b) To explore ideas and visual styles
   (c) To copy existing designs
   (d) To avoid creativity and innovation

10. What term refers to the process of world-building in concept art?

(a) Cartoony (b) Realism

(c) Hybrid (d) Environment-Sketching

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

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

11. (a) Describe the difference between linear perspective and aerial perspective.

Or

(b) Define the term "vanishing point" and its significance in linear perspective.

12. (a) What are the essentials of human figure drawing?

Or

(b) Discuss the method of constructing the front view of the figure using basic shapes.

13. (a) List and explain the characteristics of a good design.

Or

(b) What are Gestalt principles, and how do they influence design?

14. (a) Explain the application of texture and color in visual compositions.

Or

(b) Describe the study of different environments in relation to texture and coloring.

15. (a) What is concept art, and why is it important in the creative process?

Or

(b) Explain the process of character sketching in concept art.

Part C (5 × 8 = 40)

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

16. (a) Describe the process of linear perspective construction.

Or

(b) Compare and contrast linear perspective with aerial perspective. How do they differ in terms of creating depth and distance in artwork?

17. (a) Explain the concept of proportion in figure drawing.

Or

(b) Discuss the process of constructing the front view of the figure using basic shapes.

18. (a) Explain the characteristics of a good design.

Or

(b) Discuss the principles of design such as balance, contrast, emphasis, and unity.

19. (a) Identify and explain different types of textures commonly used in art and design.

Or

(b) Explain the process of creating textures using live references.

20. (a) Discuss different styles of concept art including cartoony, realism, and hybrid styles.

Or

(b) Describe the importance of silhouette design in concept art.

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C–5428	Sub. Code 83714

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Game Technology

GAME PROGRAMMING

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the function of an input device in a computer system?

   (a) To process data

   (b) To store data

   (c) To provide output to the user

   (d) To enter data into the computer

2. Which component of a computer system is responsible for memory management?

   (a) Input Devices (b) Processor

   (c) Output Devices (d) Memory

3. What is the output of a "Hello, World!" program?

   (a) Hello, World! (b) Hello

   (c) World! (d) None of the above

4. Which programming construct is used to make decisions in a program based on certain conditions?

(a) Looping

(b) Functions

(c) Conditional Statements

(d) Variables

5. What is the purpose of arrays in programming?

(a) To store multiple values of the same data type

(b) To perform mathematical operations

(c) To define constants

(d) To execute conditional statements

6. What is the advantage of using pointers in programming?

(a) They simplify program logic

(b) They improve program performance

(c) They allow dynamic memory allocation

(d) They prevent memory leaks

7. What is encapsulation in object-oriented programming?

(a) Combining data and methods into a single class

(b) Hiding the implementation details of a class

(c) Allowing multiple inheritance

(d) Accessing private data members directly

8. Which of the following is NOT a type of polymorphism?

(a) Compile-time polymorphism

(b) Runtime polymorphism

(c) Static polymorphism

(d) Dynamic polymorphism

9. Which of the following is a container in the Standard Template Library (STL)?

(a) Function Object

(b) Random Number Generator

(c) Vector

(d) Exception Handling

10. What is the purpose of container adaptors in the Standard Template Library (STL)?

(a) To store elements in a specific sequence

(b) To adapt containers to specific data types

(c) To provide additional functionality to containers

(d) To organize elements in a stack or queue

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

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

11. (a) Describe the history of computers, highlighting the key milestones in their development.

Or

(b) Discuss the classification of computers based on size, purpose, and functionality.

12. (a) Write a simple "Hello, World!" program in any programming language of your choice.

Or

(b) Differentiate between variables and constants, providing examples for each.

13. (a) Explain the concept of arrays in programming, including one-dimensional, two-dimensional, and multidimensional arrays.

Or

(b) Describe how pointers are used in various scenarios, such as variable pointers, array pointers, and pointers to pointers.

14. (a) Define classes and objects in object-oriented programming, providing examples for each.

Or

(b) Explain constructors and destructors in classes, highlighting their role in object initialization and cleanup.

15. (a) Describe containers in the Standard Template Library (STL), focusing on sequences such as vectors, lists, and deques.

Or

(b) Discuss various algorithms available in the STL for mutating containers, such as swap, replace, and remove.

Part C (5 × 8 = 40)

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

16. (a) Describe the basic anatomy of a computer system, including input devices, processor, output devices, and memory management.

Or

(b) Provide an overview of operating systems. Discuss their role in managing computer resources and facilitating user interactions.

17. (a) Define data types and discuss their role in programming. Explain the differences between primitive data types and derived data types.

Or

(b) Describe different types of operators used in programming languages. Provide examples of arithmetic, relational, and logical operators.

18. (a) Discuss the concept of pointers in programming. Explain their advantages and disadvantages and provide examples of pointer arithmetic.

Or

(b) Explain the concept of user-defined data types, including structures, unions, and enums. Discuss their usage and advantages in programming.

19. (a) Explain the concepts of constructors and destructors in OOP. Discuss their role hi object initialization and cleanup.

Or

(b) Discuss the concept of abstraction in OOP. Explain how abstract classes and interfaces are used to achieve abstraction.

20. (a) Describe various containers provided by the STL, such as vectors, lists, and deques. Discuss their characteristics and usage scenarios.

Or

(b) Discuss sorting algorithms provided by the STL, such as bubble sort, quicksort, and merge sort. Compare their efficiency and usage scenarios.

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C–5429

Sub. Code
83716C

M.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Game Technology

ADVANCED ART FOR GAME CHARACTER

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What term refers to the technique of depicting light and dark areas to create the illusion of depth?

   (a) Visual Perception

   (b) Contour Drawing

   (c) Value and Shading

   (d) Subject Variety

2. Which of the following is NOT a component of observational drawing?

   (a) Developing Visual Perception

   (b) Contour Drawing

   (c) Understanding Perspective Systems

   (d) Subject Variety

3. What is the term for the distortion that occurs when objects appear shorter in length due to their distance from the viewer?

(a) Creating Depth

(b) Overlapping and Placement

(c) Foreshortening

(d) Proportional Accuracy

4. Which aspect of perspective drawing focuses on ensuring that objects are accurately scaled in relation to one another?

(a) Creating Depth

(b) Overlapping and Placement

(c) Proportional Accuracy

(d) Converging Lines

5. Which technique involves creating a sense of movement and action in a figure drawing?

(a) Proportion and Gesture

(b) Balance

(c) Quick sketches

(d) Cylindrical forms

6. What is foreshortening in figure drawing?

(a) Depicting distant objects larger than closer objects

(b) Exaggerating the proportions of body parts

(c) Creating depth by shortening the length of body parts

(d) Adding shadows to emphasize form

7. What does color temperature refer to in color theory?

(a) The intensity of a color

(b) The emotional impact of a color

(c) The warmth or coolness of a color

(d) The brightness of a color

8. Which color harmony uses colors that are opposite each other on the color wheel?

(a) Analogous

(b) Complementary

(c) Triadic

(d) Split-complementary

9. What is the primary goal of understanding scale and proportion in environmental design?

(a) To create realistic environments

(b) To use a simplified model for fluid flow

(c) To implement a simplified 2D model

(d) To vary the design of environments

10. What does the term "conceptual depth" refer to in environmental design?

(a) The complexity and richness of a design concept

(b) The use of the Golden Ratio in compositions

(c) The implementation of texture and coloring techniques

(d) The understanding of scale and proportion

Part B (5 × 5 = 25)

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

11. (a) Describe the process of contour drawing and its significance in capturing the outlines and shapes of subjects.

Or

(b) Why is consistency important in observational drawing? How can artists maintain consistency in their drawings?

12. (a) Explain the concept of overlapping and placement in perspective drawing.

Or

(b) What are converging lines in perspective drawing? How do they help create realistic spatial relationships in artwork?

13. (a) Explain the essentials of human figure drawing.

Or

(b) Describe the process of constructing the front view of the human body using basic shapes.

14. (a) Describe the process of color mixing. What are primary, secondary, and tertiary colors, and how are they created?

Or

(b) What are color harmonies, and how do they enhance the visual appeal of artworks?

15. (a) Explain the golden ratio and its significance in achieving aesthetically pleasing compositions in environmental design.

Or

(b) Explain the golden ratio and its significance in achieving aesthetically pleasing compositions in environmental design.

Part C $(5 \times 8 = 40)$

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

16. (a) Explain the importance of developing visual perception in observational drawing.

Or

(b) Discuss the significance of value and shading in observational drawing.

17. (a) Define perspective systems in drawing and explain their importance in creating realistic spatial representations.

Or

(b) Explain the concept of proportional accuracy in perspective drawing.

18. (a) Explain the importance of understanding figure drawing basics in artistic practice.

Or

(b) Discuss the process of simplifying body parts into 2D shapes.

19. (a) Define the color wheel and explain its significance in understanding color relationships and harmony.

Or

(b) Discuss the properties of color, including hue, saturation, and brightness.

20. (a) Define conceptual depth in environmental design and explain its importance in creating immersive and engaging environments.

Or

(b) Explain the role of perspective in environmental design.

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C–5430	Sub. Code
	83721

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Game Technology

2D ART

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which of the following is a type of perspective view?
   (a) Horizontal (b) Linear
   (c) Vertical (d) Geometric

2. What does the vanishing point in perspective terminology refer to?
   (a) The point where colors change
   (b) The point where parallel lines converge
   (c) The point where light is brightest
   (d) The point where shadows fall

3. What is the first step in figure drawing basics?
   (a) Adding colors
   (b) Simplifying body parts
   (c) Shading
   (d) Detailing the face

4. Which of the following refers to the line of action in figure drawing?
   (a) The curve that represents movement
   (b) The straight line at the bottom of a drawing
   (c) The horizontal line of the drawing
   (d) The vertical division of the body

5. Which is not a principle of design?
   (a) Balance (b) Rhythm
   (c) Texture (d) Harmony

6. What is color harmony?
   (a) Combining colors randomly
   (b) Using colors that create a pleasing effect
   (c) Using only primary colors
   (d) Mixing all colors equally

7. Which is a type of texture?
   (a) Smooth (b) Transparent
   (c) Shiny (d) Abstract

8. Which element is crucial in understanding scale and proportion in textures?
   (a) Brightness (b) Line thickness
   (c) Size comparison (d) Contrast

9. What is the primary focus in concept art?
   (a) Detailed shading
   (b) Environment realism
   (c) Storytelling
   (d) Abstract designs

10. Which style is a combination of realistic and cartoony elements?
   (a) Hybrid (b) Monochrome
   (c) Surreal (d) Minimalist

Part B (5 × 5 = 25)

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

11. (a) Explain the difference between linear and aerial perspectives.

Or

(b) Describe the importance of the vanishing point in perspective drawing.

12. (a) Discuss the role of gesture in figure drawing.

Or

(b) Explain how to construct a stick figure and its importance.

13. (a) What are the key elements of design, and why are they important?

Or

(b) Describe the concept of visual abstraction and its uses in design.

14. (a) How do textures influence the perception of an image?

Or

(b) Explain the process of creating texture using live references.

15. (a) What are the different styles in concept art, and how do they impact world-building?

Or

(b) Discuss the elements of storytelling in concept art.

Part C (5 × 8 = 40)

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

16. (a) Analyze the use of perspective in modern video games.

Or

(b) Discuss the evolution of perspective drawing from classical to digital art.

17. (a) Examine the role of proportions in figure drawing and their impact on realism.

Or

(b) Evaluate different methods of capturing motion in figure drawings.

18. (a) Critically assess the influence of color theory on design practices.

Or

(b) Discuss the significance of typography in visual communication.

19. (a) Explore the relationship between textures and materials in 3D modeling.

Or

(b) Analyze the use of textures in creating realistic environments in animation.

20. (a) Discuss the process of creating a storyboard for a short animation.

Or

(b) Evaluate the impact of concept art on the visual development of a video game.

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C–5431	Sub. Code 83722

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Game Technology

ADVANCED 3D DESIGN TECHNIQUES

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the purpose of retopology in 3D modeling?
   (a) Enhance textures
   (b) Improve animation
   (c) Simplify rendering
   (d) Create complex surfaces

2. Which tool is used for creating organic forms?
   (a) Polygon tool (b) Sculpting tool
   (c) Extrude tool (d) Boolean tool

3. What is radiosity used for in rendering?
   (a) Color correction
   (b) Soft shadows
   (c) Global illumination
   (d) Surface reflection

4. Which map is essential for adding surface details?

(a) Albedo map (b) Normal map

(c) Diffuse map (d) Reflection map

5. What does IK stand for in character animation?

(a) Inverse Kinematics

(b) Initial Keyframe

(c) Inner Kinetics

(d) Integrated Kinetics

6. Which aspect is crucial for syncing animation to audio?

(a) Timing (b) Lighting

(c) Shading (d) Modeling

7. What is the rule of thirds used for?

(a) Texture mapping (b) Animation timing

(c) Composition (d) Lighting setup

8. Which technique helps create depth in visualization?

(a) Soft shadows (b) Leading lines

(c) Color grading (d) Layered shaders

9. What is procedural texture generation?

(a) Manual texture painting

(b) Using algorithms for textures

(c) Pre-made texture application

(d) Texturing with photographs

10. Which system is used for fluid simulations?

(a) Particle system (b) Boolean system

(c) Extrude system (d) Wireframe system

Part B (5 × 5 = 25)

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

11. (a) Explain the importance of clean edge flow in modeling.

Or

(b) Discuss the use of modifiers in a non-destructive workflow.

12. (a) Describe the differences between shadow maps and ray tracing.

Or

(b) Explain the role of microfacet theory in material realism.

13. (a) What are blend shapes, and how are they used in facial animation?

Or

(b) Discuss the importance of secondary motion in animation.

14. (a) Explain how lighting affects mood in interactive environments.

Or

(b) Discuss the significance of visual narrative in presentations.

15. (a) Describe the process of integrating real-world objects into 3D scenes.

Or

(b) Explain the role of displacement mapping in adding high-resolution details.

Part C (5 × 8 = 40)

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

16. (a) Analyze the role of advanced modeling techniques in modern animation.

Or

(b) Discuss the impact of sculpting tools on creating intricate features.

17. (a) Evaluate the challenges of achieving photorealism in rendering.

Or

(b) Explore the use of layered shaders for realistic textures.

18. (a) Assess the impact of joint hierarchies on character animation.

Or

(b) Discuss how anticipation and follow-through enhance animation realism.

19. (a) Examine the role of camera movement in storytelling.

Or

(b) Analyze the use of emotion and mood in visual composition.

20. (a) Discuss the future of augmented reality in 3D design.

Or

(b) Evaluate the role of virtual reality in creating immersive experiences.

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C–5432	Sub. Code
	83723

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Game Technology

SPECIALIZED GAME ENGINE — I

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. What is the primary difference between 2D and 3D games?

   (a) Number of players

   (b) Visual dimensions

   (c) Game genre

   (d) Difficulty level

2. Which tool is used to convert screen positions to world positions?

   (a) Console

   (b) Terrain editor

   (c) Coordinate converter

   (d) Profiler

3. What is the purpose of collision detection in games?

(a) Enhance graphics (b) Trigger events

(c) Control audio (d) Improve performance

4. Which method is used for handling frame rate?

(a) Coroutines (b) Ray casting

(c) Profiler window (d) Namespaces

5. What does occlusion culling help with?

(a) Texture mapping (b) Rendering efficiency

(c) Sound effects (d) Animation control

6. Which element is used to create particle effects in games?

(a) GUI (b) Lens flare

(c) Shader (d) Particle system

7. What is the function of a HUD in game UI?

(a) Control camera angles

(b) Provide player information

(c) Manage physics

(d) Control animations

8. What is a server responsible for in networking concepts?

(a) Handling animations

(b) Storing game data

(c) Rendering graphics

(d) Managing connections

9. What is a key aspect of 2D game mechanics?

(a) Depth perception

(b) Particle effects

(c) Horizontal movement

(d) Sound mixing

10. What does path finding help achieve in games?

(a) Optimize code

(b) Navigate characters

(c) Render graphics

(d) Play audio

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

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

11. (a) Explain the process of designing level maps for a 3D game.

Or

(b) Discuss the role of prefabs and tags in setting up a game environment.

12. (a) Describe how triggers and colliders are used in game scripting.

Or

(b) Explain the concept of ray casting in controlling game objects.

13. (a) Discuss the importance of occlusion culling in game optimization.

Or

(b) Explain how particle effects enhance the visual appeal of a game.

14. (a) Describe the key elements of a basic game UI layout.

Or

(b) Discuss the importance of networking concepts in multiplayer games.

15. (a) Explain basic AI mechanics used in games.

Or

(b) Discuss the role of audio and dialog in enhancing gameplay.

Part C (5 × 8 = 40)

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

16. (a) Analyze the challenges of converting 2D game concepts to 3D.

Or

(b) Discuss the impact of terrain design on player experience.

17. (a) Evaluate the use of coroutines in optimizing game performance.

Or

(b) Analyze different types of joints and their applications in 3D physics.

18. (a) Examine the role of global illumination in creating realistic game environments.

Or

(b) Discuss the process of optimizing memory usage in game development.

19. (a) Explore the challenges of designing a user-friendly game UI.

Or

(b) Evaluate the impact of sound and music on game atmosphere.

20. (a) Discuss the importance of event handling in advanced gameplay programming.

Or

(b) Analyze the role of pathfinding in creating intelligent game AI.

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C–5433

Sub. Code
83726B

M.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Game Technology

GAME LEVEL DESIGNING

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A $(10 \times 1 = 10)$

Answer **all** questions.

1. What is a key aspect of player-centric design?
   (a) Graphics quality (b) Sound effects
   (c) Player experience (d) Code optimization

2. What does spatial design focus on?
   (a) Game rules (b) Level layout
   (c) Sound design (d) AI scripting

3. Which element is crucial for level flow?
   (a) Lighting (b) Contrast
   (c) Player control (d) Music

4. What does the "Three-Act Structure" refer to?
   (a) Game mechanics (b) Narrative pacing
   (c) Sound effects (d) Visual effects

5. What enhances mood and emotion in games?
   (a) Game rules
   (b) Audio effects
   (c) Narrative elements
   (d) AI behaviors

6. What is essential for balancing gameplay?
   (a) Graphics (b) Player feedback
   (c) Lighting (d) Sound design

7. What is rapid prototyping used for?
   (a) Finalizing graphics
   (b) Iterating game levels
   (c) Improving sound quality
   (d) Enhancing AI behaviors

8. What is the focus of playtesting?
   (a) Graphics optimization
   (b) Player experience
   (c) Code debugging
   (d) Sound mixing

9. What is crucial in a game design portfolio?
   (a) Technical skills (b) Sound design
   (c) AI scripting (d) Level variety

10. What is the purpose of efficiency in level design?
   (a) Speeding up development
   (b) Reducing sound complexity
   (c) Enhancing visual effects
   (d) Simplifying AI behaviors

Section B (5 × 5 = 25)

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

11. (a) Explain the significance of player-centric design in game levels.

Or

(b) Discuss the impact of environmental storytelling on player engagement.

12. (a) Describe how balance and contrast affect level layout and flow.

Or

(b) Explain the role of the "Three-Act Structure" in narrative integration.

13. (a) Discuss the elements that contribute to mood and atmosphere in games.

Or

(b) Explain the importance of player experience in environmental storytelling.

14. (a) Analyze the role of feedback and rewards in gameplay mechanics.

Or

(b) Discuss strategies for balancing challenges in game design.

15. (a) Explain the process of rapid prototyping in game development.

Or

(b) Discuss the importance of showcasing a diverse portfolio for a game design career.

Section C (5 × 8 = 40)

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

16. (a) Evaluate the evolution and importance of game level design.

Or

(b) Discuss the challenges and strategies in balancing difficulty curves.

17. (a) Analyze the integration of real-world design concepts in level layouts.

Or

(b) Discuss the use of lighting and color schemes to enhance game narratives.

18. (a) Examine the impact of narrative elements on player engagement and emotion.

Or

(b) Discuss the role of atmosphere in creating immersive game experiences.

19. (a) Explore the challenges of designing interactive gameplay mechanics.

Or

(b) Discuss the importance of pacing and interactivity in engaging players.

20. (a) Analyze the role of playtesting and iteration in optimizing game levels.

Or

(b) Discuss strategies for building an effective game design portfolio.

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C–5434

Sub. Code
83731

M.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Game Technology

SPECIALIZED GAME ENGINE II

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Section A (10 × 1 = 10)

Answer **all** questions.

1. What is the first step in starting a new project in a game engine?

   (a) Importing assets

   (b) Setting up lighting

   (c) Project creation

   (d) Creating materials

2. Which tool in a game engine is used to move, rotate, and scale objects?

   (a) Primitive tool (b) Geometry tool

   (c) Transform tool (d) Lighting tool

3. What does a normal map do in game graphics?

   (a) It creates lighting effects

   (b) It adds surface detail by simulating small bumps and dents

   (c) It generates terrain height

   (d) It controls transparency

4. What is the role of emissive maps in game graphics?

(a) To simulate reflective surfaces

(b) To generate shadows

(c) To create self-illuminating surfaces

(d) To add sound effects

5. What is a HUD in the context of game development?

(a) A texture mapping technique

(b) A sound editing tool

(c) A Heads-Up Display showing game information

(d) A character animation system

6. Which element is used to animate UI elements in Unreal Engine?

(a) HUD bindings

(b) UM GUI Animation

(c) Floating UI widget component

(d) Blueprint classes

7. What is the function of the Save/Load game feature in game development?

(a) To enhance visual effects

(b) To manage game physics

(c) To store and retrieve game progress

(d) To design user interfaces

8. Which ability would most likely be used to temporarily decrease the games gravity?

(a) Speed boost ability

(b) Gravity boost ability

(c) Slow motion ability

(d) Level complete screen

9. What is a moving platform used for in a game?

(a) To create visual effects

(b) To save game data

(c) To transport players or objects from one location to another

(d) To generate sound effects

10. What is the purpose of a crushing pillar in game design?

(a) To enhance visual effects

(b) To create a challenging obstacle for players

(c) To manage game audio

(d) To store game progress

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

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

11. (a) Describe the installation process of a game engine. What are the key steps involved?

Or

(b) Explain the user interface overview of a typical game engine. What are the main components a developer interacts with?

12. (a) Discuss the function of normal maps in adding detail to game textures. How are normal maps created and applied?

Or

(b) What is the purpose of emissive maps in game development? Provide examples of how they are used to enhance visual effects.

13. (a) Discuss the various Blueprint variable types and their uses. How do they enhance the functionality of Blueprints?

Or

(b) Outline the steps involved in creating a HUD using UI widgets in Unreal Engine. What elements are typically included in a HUD?

14. (a) Describe the steps involved in saving and loading game data. Why is this feature crucial for game development?

Or

(b) What are the benefits of implementing a game countdown timer? Provide examples of how it can be used in gameplay.

15. (a) Discuss the importance of blocking out the level in game design. How does this process contribute to the overall development of the game?

Or

(b) What are the key considerations when creating a moving platform in a game? How can it enhance the player's experience'?

Section C

$(5 \times 8 = 40)$

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

16. (a) Explain the process of creating materials in a game engine. Discuss the importance of materials in achieving realistic textures and appearances in game objects.

Or

(b) Explore the geometry editing tools available in game engines. Provide detailed examples of how these tools are used to modify and enhance game objects and environments.

17. (a) Explain the concept of destruction in game physics. How is destruction simulated and what impact does it have on gameplay and player immersion?

Or

(b) Explore the creation of cinematic and cut scenes in game development. Discuss the techniques and tools used to create engaging and story-driven cut scenes

18. (a) Explain the techniques involved in creating basic UM GUI animations. Discuss the importance of these animations in enhancing user experience.

Or

(b) Explore the creation and use of floating UI widget components in Unreal Engine. Provide detailed examples of how these components can be used to display dynamic information in the game world.

19. (a) Describe the process of creating a level complete screen. What elements should be included to ensure a satisfying player experience?

Or

(b) Explore the implementation of save game data features in a game engine. Discuss the challenges and best practices for ensuring data integrity and a smooth user experience.

20. (a) Describe the steps involved in blocking out a level. How does this early stage of development influence the final design and functionality of the game?

Or

(b) Explore the design and implementation of a crushing pillar as a game obstacle. What factors must be considered to ensure it is challenging but fair, and how does it contribute to the overall gameplay experience?

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C–5435	Sub. Code
	83733

M.Sc. DEGREE EXAMINATION, APRIL 2025.

Third Semester

Game Technology

EMERGING TECHNOLOGIES IN GAME DEVELOPMENT

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A $(10 \times 1 = 10)$

Answer **all** questions.

1. What is a primary goal of Virtual Reality (VR) in game development?

   (a) To improve game audio quality

   (b) To create immersive and interactive environments

   (c) To enhance 2D graphics

   (d) To reduce game development costs

2. Which component is essential for VR hardware?

   (a) High-resolution monitor

   (b) VR headset

   (c) Stereo speakers

   (d) Traditional game controller

3. What is a quaternion primarily used for in game development?

(a) Modeling textures

(b) Managing game audio

(c) Representing and computing rotations

(d) Creating game levels

4. How are two quaternions combined?

(a) Addition (b) Subtraction

(c) Multiplication (d) Division

5. Which phenomenon describes the bending of light as it passes from one medium to another?

(a) Reflection (b) Refraction

(c) Diffraction (d) Dispersion

6. What is the term for imperfections in images caused by lenses?

(a) Chromatic aberration

(b) Spherical aberration

(c) Lens aberrations

(d) Optical distortion

7. What type of AR classification uses accelerometers and gyroscopes?

(a) Sensor-based AR

(b) Vision-based AR

(c) Hybrid AR

(d) Marker-based AR

8. Which process involves identifying unique patterns in an image for AR applications?

(a) Image acquisition

(b) Feature extraction

(c) Geometric verification

(d) Feature matching

9. What does IoT stand for in the context of emerging technologies?

(a) Internet of Tools

(b) Internet of Things

(c) Integration of Technology

(d) Interaction of technology

10. Which of the following is an example of a communication protocol used in IoT?

(a) HTTP (b) TCP/IP

(c) MQTT (d) FTP

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

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

11. (a) Explain the primary goals of Virtual Reality (VR) in game development. How do these goals enhance the gaming experience?

Or

(b) Describe the components that constitute VR hardware. How do these components work together to create an immersive experience?

12. (a) Explain the concept of quaternions and their advantages over Euler angles in representing rotations in 3D space.

Or

(b) Describe the process of converting a rotation matrix to a quaternion. Why is this conversion important in game development?

13. (a) Explain the principle of refraction and its significance in game development, particularly in creating realistic visual effects.

Or

(b) Describe the different types of lens aberrations and how they affect image quality in graphics rendering.

14. (a) Describe the differences between sensor-based, vision-based, and hybrid AR tracking methods.

Or

(b) Explain the process of image acquisition in AR systems and its importance for feature extraction.

15. (a) Describe the roles of sensing and actuation in IoT systems. How do these components interact?

Or

(b) Explain the importance of communication protocols in IoT. Give examples of commonly used protocols.

Part C $(5 \times 8 = 40)$

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

16. (a) Investigate the definitions and key concepts of Virtual Reality (V/R). How have these concepts evolved over time and what are their implications for future game development?

Or

(b) Describe the process of developing Bird's Eye view hardware for VR. What challenges are faced during development and how are they addressed to ensure functionality and user comfort?

17. (a) Investigate the mathematical properties of quaternions. How are quaternion rotations applied in game engines to achieve smooth and continuous rotations?

Or

(b) Describe in detail the process of quaternion multiplication. Provide examples of how this operation is used in game development to combine multiple rotations.

18. (a) Investigate the three interpretations of light (particle, wave, and quantum). How are these interpretations applied in modern game development to enhance visual realism?

Or

(b) Explain the concept of depth perception and the various cues used to create a sense of depth in virtual environments. Provide examples of techniques used in games to achieve this effect.

19. (a) Provide a detailed explanation of sensor-based AR tracking. What sensors are typically used and how do they contribute to the overall AR experience?

Or

(b) Examine the challenges and solutions associated with vision-based AR tracking. How do these challenges impact the development and performance of AR applications?

20. (a) Provide a detailed explanation of how networking supports IoT infrastructure. Include discussions on different types of networks used and their roles.

Or

(b) Examine the challenges and solutions related to communication protocols in IoT. How do these protocols ensure reliable and efficient data transfer?

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C–5436	Sub. Code 83736B

M.Sc. DEGREE EXAMINATION, APRIL 2025.

Third Semester

Game Technology

ADVANCED GAME ART

(2023 onwards)

Duration : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Which animation principle ensures fluid motion between frames?

   (a) Weight (b) Timing

   (c) Dynamics (d) Anticipation

2. What does spacing in animation help achieve?

   (a) Smooth transitions

   (b) Bright colors

   (c) Strong contrast

   (d) High detail

3. Knowledge of anatomy is vital for

   (a) Lighting techniques

   (b) Realistic animation

   (c) Texturing surfaces

   (d) Audio effects

4. Understanding animal anatomy aids in:
   (a) Background design
   (b) Lighting effects
   (c) Character believability
   (d) Sound integration

5. Which element is crucial for expressing emotions in characters?
   (a) Background music (b) Facial expressions
   (c) Frame rate (d) Texturing

6. Capturing gestures in animation is important for:
   (a) Timing accuracy (b) Emotional depth
   (c) Texture variety (d) Color balance

7. Unique character design focuses on:
   (a) Consistent lighting
   (b) Appealing aesthetics
   (c) Simplified models
   (d) Complex animations

8. Which aspect is key to a character's narrative role?
   (a) Detailed backgrounds
   (b) Consistent design
   (c) Fast frame rate
   (d) Loud sound effects

9. Storyboarding is used for:
   (a) Frame rate calculation
   (b) Visual planning
   (c) Texture mapping
   (d) Audio editing

10. What conveys emotion effectively in visual storytelling?
   (a) High resolution (b) Visual elements
   (c) Audio balance (d) Texture detail

Part B (5 × 5 = 25)

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

11. (a) Discuss how timing and anticipation contribute to animation realism.

Or

(b) Explain the significance of spacing in achieving smooth animation dynamics.

12. (a) Describe the role of anatomy in character animation and design.

Or

(b) Explain how animal anatomy knowledge enhances animated character realism.

13. (a) How do gestures and acting techniques enhance character animation?

Or

(b) Discuss the importance of facial expressions in character storytelling.

14. (a) Explain the process of creating visually appealing character designs.

Or

(b) Discuss how different animation styles influence character development.

15. (a) Describe the process of using storytelling techniques in animation.

Or

(b) Explain the benefits of storyboarding in planning an animation sequence.

Part C (5 × 8 = 40)

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

16. (a) Analyze the core principles of animation and their impact on motion realism.

Or

(b) Discuss the role of dynamics in creating convincing animation physics.

17. (a) Evaluate how human anatomy informs realistic character movement design.

Or

(b) Discuss the importance of animal anatomy in creating believable animations.

18. (a) Explore the role of gestures and expressions in developing animated characters.

Or

(b) Analyze how acting can enhance the emotional depth of character animations.

19. (a) Discuss how to design characters that are unique and fit various animation styles.

Or

(b) Evaluate the importance of character appeal and uniqueness in animation storytelling.

20. (a) Analyze how visual storytelling techniques are used to convey emotions and narrative.

Or

(b) Discuss the role of storyboarding in animation and its influence on storytelling clarity.
