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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**First Semester**

**Game Design and Development**

**PROFESSIONAL CONTEXT TECHNOLOGY AND COMMUNICATION METHODS**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which term describes the process of adjusting game parameters to achieve the desired player experience?

   (a) Evolution of Games

   (b) Human-Computer Interaction Fundamentals

   (c) Ethics of new media

   (d) Core Dynamics

2. Which concept refers to the underlying rules and systems in a game?

   (a) Mechanics

   (b) Orthogonality

   (c) Tuning

   (d) Flow

3. What is the term for the deliberate arrangement of events in a game to create a specific narrative path?

(a) Chance

(b) Structuring a Game

(c) Channels of Information Gameplay

(d) Alea

4. In game design, what does the term "open worlds" typically refer to?

(a) Open Worlds

(b) Networks

(c) Linear Plot

(d) Branching Tree

5. What term describes the environment in which a game takes place, including its geography, culture, and history?

(a) Nature of Games Characters

(b) Transmedia World

(c) Spaces

(d) The Game World

6. Which term refers to the physical or digital representation of the game environment, including structures, terrain, and landmarks?

(a) Architecture

(b) Properties

(c) Real vs Virtual Architecture

(d) Organizing Game Space

7. Which element of game design involves the creation and manipulation of virtual environments, characters, and objects?

(a) Actions

(b) Objects, Attributes, and States

(c) Space

(d) Rules

8. What factor in game design influences the balance between skill-based challenges and random outcomes?

(a) Factors of Interest

(b) Interest Curves

(c) Skill

(d) Chance

9. What term describes the laws and regulations that govern the creation and distribution of computer games?

(a) Code and Other Laws of Computer Game Design

(b) Player Communities

(c) Ergodisc

(d) Strong Communities

10. In player taxonomy, what aspect refers to the psychological characteristics and motivations of players?

(a) Know Your Players

(b) Psychographics

(c) Changing the Player Type Balance

(d) Dynamics of Player Taxonomy

## Part B (5 × 5 = 25)

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

11. (a) Describe each component (Mechanics, Dynamics, Aesthetics) and their interplay in shaping player experiences.

Or

(b) Analyze the role of ethics in new media, considering issues such as privacy, misinformation, and digital rights.

12. (a) Provide examples of games that utilize each approach and analyze how these narrative structures impact player experience.

Or

(b) Explore how these mechanics influence player decisions and outcomes, citing examples from different genres.

13. (a) Provide examples of games that effectively utilize aesthetics to enhance gameplay experiences.

Or

(b) Discuss the role of environmental sounds, music, and voice acting in creating atmosphere and conveying narrative themes.

14. (a) Analyze the factors that contribute to player motivation in games.

Or

(b) Compare games that encourage open-ended creativity and exploration with those that provide structured narratives and objectives.

15. (a) Compare games with strong, dedicated communities to those with fragmented or transient player bases, discussing how community dynamics affect game longevity and cultural significance.

Or

(b) Discuss the ethics of player interactions in online gaming environments.

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

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

16. (a) Explain the concept of tension maps in game design and how they contribute to player experience.

Or

(b) Discuss the concept of flow in game design, explaining its significance in player engagement and immersion.

17. (a) Discuss how game designers can design mechanics that cater to both skilled and strategic gameplay styles.

Or

(b) Compare games that utilize linear channels with those that offer more open-ended information dissemination.

18. (a) Discuss how the organization and navigation of spaces influence player experience and narrative progression.

Or

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

19. (a) Discuss the challenges of managing in-game economies and preventing inflation or imbalance.

Or

(b) Explore how games can adapt difficulty levels, pacing, and content in real-time based on player performance and feedback.

20. (a) Explore issues such as toxicity, harassment, and cheating, and examine how game developers and communities can promote ethical behavior and foster positive social interactions.

Or

(b) Discuss how game designers can adapt to changes in player behaviour and adjust game mechanics to maintain player engagement over time.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**First Semester**

**Game Design and Development**

**VISUALIZATION FOR GAMES**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which type of perspective view emphasizes the relationship between objects and their distance from the viewer by using converging lines towards a single point on the horizon?

   (a) Horizontal Line/Eye Level

   (b) Station Point

   (c) Linear Perspective

   (d) Aerial Perspective

2. In perspective drawing, what term refers to the point where all parallel lines converge and appear to vanish?

   (a) Vanishing Point

   (b) Linear Perspective

   (c) Actions

   (d) Horizontal Line/Eye Level

3. In figure drawing, what refers to maintaining the correct size relationship between different body parts?

(a) Stick Figure

(b) Line of Action

(c) Relative Proportion of Various Parts of Body

(d) Factors of Interest

4. What term describes the simplified representation of the human body using basic shapes like circles and rectangles?

(a) Simplifying Body Parts into 2D Shapes

(b) Psychographics

(c) Relative Proportion of Various Parts of Body

(d) Interest Curves

5. What principle of design focuses on achieving equilibrium and stability in a composition by distributing visual weight evenly?

(a) Color Theory

(b) Attributes of Color

(c) Balance

(d) Characteristics of a Good Design

6. What concept involves simplifying complex forms into basic geometric shapes for easier representation and understanding?

(a) Simplifying Body Parts into 2D Shapes

(b) Color Theory

(c) Visual Abstraction

(d) Cognitive Learning Model

7. What elements are commonly used as tools in texture creation and manipulation?

(a) Materials in Textures

(b) Environments

(c) Background

(d) Tools

8. Which aspect of texture design focuses on ensuring that the texture fits the size and shape of the object it is applied to?

(a) Factors of Interest

(b) Scale and Proportion

(c) Different Environment

(d) Texture tools

9. In concept art, what term refers to the process of designing and illustrating the physical spaces and landscapes within a story or game?

(a) Props and Weapon Design

(b) Vehicle Design

(c) Storytelling

(d) Environment Sketching

10. What element of story focuses on the sequential arrangement of events and actions that unfold within the narrative?

(a) Introduction

(b) Styles

(c) Scene Construction

(d) Script Writing

## Section B (5 × 5 = 25)

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

11. (a) Write a note on perspective terminologies.

Or

(b) Discuss about two-point perspective with an example.

12. (a) Write short notes on front and side view cylindrical forms.

Or

(b) Write a note on the importance of contour drawing.

13. (a) What is the difference between scale and proportion in design?

Or

(b) Write briefly about the application of texture.

14. (a) Write briefly about the Cognitive learning model.

Or

(b) Write a note on Additive and Subtractive model.

15. (a) Briefly discuss about the script writing and script formatting.

Or

(b) Write short note on cartoony, realism and hybrid.

## Section C (5 × 8 = 40)

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

16. (a) Elaborate about the perspective terminologies and provide examples related to linear perspective construction.

Or

(b) Explain One-point and Three-point perspective with examples.

17. (a) Explain the detail about the various steps involved in the process of human figure drawing with sketches.

Or

(b) Explain in detail contour drawing and cylindrical forms.

18. (a) Discuss the importance of dodging and burning in colour blending.

Or

(b) Explain in detail about the cognitive learning model and color based models.

19. (a) Write a detail note on basic elements of composition.

Or

(b) Discuss the various color grounds in texture, elucidate them with suitable real-time examples.

20. (a) Explore about the Silhouettes and the types of sketching in a concept art.

Or

(b) Write in detail about the various types of transitions.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Second Semester**

**Game Design and Development**

**INTERACTIVE MEDIA DEVELOPMENT**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which device is considered an input device?
   (a) Printer (b) Monitor
   (c) Keyboard (d) Speaker

2. What is the primary function of an operating system?
   (a) To manage hardware resources
   (b) To edit documents
   (c) To browse the internet
   (d) To play games

3. What data type would you use to store a whole number?
   (a) float (b) char
   (c) int (d) string

4. Which of the following is a conditional statement?
   (a) for (b) if
   (c) while (d) switch

5. What is a one-dimensional array?
   (a) A single list of elements
   (b) A grid of elements
   (c) A table with rows and columns
   (d) A structure with multiple arrays

6. What is a pointer?
   (a) A variable that stores data
   (b) A function return type
   (c) A reference to a memory location
   (d) A data type

7. What is encapsulation?
   (a) Hiding data implementation
   (b) Defining multiple functions
   (c) Creating new objects
   (d) Writing algorithms

8. Which of the following is a type of polymorphism?
   (a) Static (b) Dynamic
   (c) Both (a) and (b) (d) None of the above

9. Which container is used for a sequence in STL?
   (a) Vector (b) Stack
   (c) Queue (d) Map

10. What is the purpose of a binary search algorithm?
   (a) To sort data
   (b) To search efficiently in sorted data
   (c) To generate random numbers
   (d) To manage memory

## Section B (5 × 5 = 25)

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

11. (a) Explain the basic anatomy of a computer system.

Or

(b) Describe the different types of software.

12. (a) Write a program to demonstrate a simple "Hello World" output in a programming language of your choice.

Or

(b) Explain the concept of functions and how they are used in programming.

13. (a) Describe the differences between one-dimensional and two-dimensional arrays.

Or

(b) Explain the concept of pointers and their advantages and disadvantages.

14. (a) Define the concept of inheritance in object-oriented programming.

Or

(b) Explain the role of constructors and destructors.

15. (a) Discuss the various types of data structures used in programming.

Or

(b) Describe the process of sorting and searching in data structures.

## Section C (5 × 8 = 40)

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

16. (a) Discuss the history and evolution of computers, highlighting key milestones.

Or

(b) Explain the importance of programming languages and translator programs.

17. (a) Analyze the role of conditional statements and loops in programming with examples.

Or

(b) Explain recursive functions and their applications in solving complex problems.

18. (a) Explore the concept of dynamic arrays and their applications.

Or

(b) Discuss user-defined data types and their importance in programming.

19. (a) Describe the principles of polymorphism and its types with examples.

Or

(b) Analyze the importance of exception handling in software development.

20. (a) Examine the use of the Standard Template Library (STL) in C++ and its components.

Or

(b) Discuss the different algorithms for sorting and searching, providing examples.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Second Semester**

**Game Design and Development**

**2D GAME ART**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Section A** (10 × 1 = 10)

Answer **all** questions.

1. What is the primary difference between vector and raster graphics?

   (a) Vector graphics are resolution-independent, raster graphics are not

   (b) Raster graphics are easier to edit than vector graphics

   (c) Vector graphics use pixels, raster graphics use paths

   (d) Raster graphics are smaller in file size

2. Which tool is used for color selection in image editing?

   (a) Lasso tool (b) Magic wand tool

   (c) Eyedropper tool (d) Crop tool

3. What is a function of the layers in image editing software?

(a) To create 3D models

(b) To organize and separate elements

(c) To enhance sound quality

(d) To write code

4. Which blending mode is used to darken an image?

(a) Multiply (b) Screen

(c) Overlay (d) Color dodge

5. What is Adobe Illustrator primarily used for?

(a) Video editing

(b) Web design

(c) Vector graphic design

(d) Text editing

6. Which feature in Illustrator allows for precise positioning of objects?

(a) Layers panel (b) Pathfinder

(c) Attributes panel (d) Gradient tool

7. What is digital painting primarily used for in game art?

(a) Coding games

(b) Creating textures and illustrations

(c) Developing game logic

(d) Writing scripts

8. Which tool is essential for creating sprites for animation?

(a) Marquee tool (b) Pencil tool

(c) Magic wand tool (d) Gradient tool

9. What does the liquify filter do in image editing?
   (a) Changes the color scheme
   (b) Adds text to images
   (c) Distorts and reshapes areas
   (d) Enhances brightness

10. Which tool is used for freehand drawing in Adobe Illustrator?
   (a) Pen tool (b) Mesh tool
   (c) Brush tool (d) Pencil tool

## Section B (5 × 5 = 25)

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

11. (a) Explain the importance of graphics in technology.

Or

(b) Discuss the differences between vector and raster graphics.

12. (a) Describe the use of selection tools in image editing applications.

Or

(b) Explain how to use the healing brush and its purpose.

13. (a) Describe the process of blending modes and their effects in image editing.

Or

(b) Explain the use of adjustment layers for image correction.

14. (a) Discuss the key features of Adobe Illustrator for creating digital illustrations.

Or

(b) Explain the process of logo design and the qualities of a good logo.

15. (a) Describe the process of creating sprite sheets for animation.

Or

(b) Discuss the role of digital painting in game art development.

## Section C

$(5 \times 8 = 40)$

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

16. (a) Evaluate the impact of graphics on modern technology and its applications.

Or

(b) Discuss the process of image manipulation, including format conversion and color manipulation.

17. (a) Analyze the role of tools in image editing applications and their functionalities.

Or

(b) Discuss the creative process of using image editing software for professional work.

18. (a) Explain the significance of layers and masks in complex image compositions.

Or

(b) Analyze the effects of different filters and their artistic applications.

19. (a) Explore the tools and techniques used in Adobe Illustrator for advanced design.

Or

(b) Discuss the importance of customizing the workspace in Adobe Illustrator.

20. (a) Examine the process of digital painting and its application in game art and design.

Or

(b) Discuss the development of GUI assets for games and their importance.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Third Semester**

**Game Design and Development**

**GAME ENGINE I**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Section A** (10 × 1 = 10)

Answer **all** questions.

1. What is a prefab in game development?
   (a) A sound effect
   (b) A reusable game object
   (c) A level map
   (d) A console command
2. What is the function of the profiler window?
   (a) To design levels
   (b) To analyze performance
   (c) To create animations
   (d) To manage network connections
3. What is a trigger in game scripting?
   (a) A type of music track
   (b) An event response mechanism
   (c) A character animation
   (d) A visual effect

4. Which of the following is used to handle frame rates in a game?

(a) Mesh renderer (b) Event manager

(c) Profiler tool (d) Coroutine

5. What is the primary purpose of shading in games?

(a) To enhance audio quality

(b) To improve lighting effects

(c) To increase game speed

(d) To add texture

6. What is occlusion culling designed to do?

(a) Enhance sound clarity

(b) Improve visual rendering

(c) Reduce processing of unseen objects

(d) Increase animation quality

7. How is HUD used in game design?

(a) To optimize memory usage

(b) To provide game information to players

(c) To manage server connections

(d) To adjust lighting

8. What does “spawn” refer to in networking?

(a) Removing a game object

(b) Creating a new player instance

(c) Storing a file

(d) Transmitting data

9. Which is a common AI technique for pathfinding?

(a) Quick sort (b) A* algorithm

(c) Depth-first search (d) Linear regression

10. What is the primary use of particle effects in games?

(a) Creating soundscapes

(b) Generating visual effects

(c) Managing frame rates

(d) Optimizing memory

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

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

11. (a) Discuss the concepts of 2D versus 3D game development.

Or

(b) Explain the process of setting up a game environment.

12. (a) Describe the role of triggers in controlling game events.

Or

(b) Explain how-ray casting is used-in-game scripting.

13. (a) Discuss the importance of lighting and shading in game development.

Or

(b) Explain methods for optimizing memory usage in games.

14. (a) Describe the process of designing a basic game UI.

Or

(b) Discuss the role of sound and music in enhancing gameplay.

15. (a) Explain the use of events and actions in advanced gameplay programming.

Or

(b) Discuss the role of AI mechanics in game development.

## Section C (5 × 8 = 40)

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

16. (a) Evaluate the challenges and techniques involved in 3D game development.

Or

(b) Discuss the importance of level design in creating immersive game worlds.

17. (a) Explain the techniques for controlling game object behavior through scripting.

Or

(b) Discuss the role of animation and physics in creating dynamic game experiences.

18. (a) Analyze the techniques for optimizing game performance through lighting and shading.

Or

(b) Discuss methods for efficient memory management and event optimization.

19. (a) Explore the design and functionality of game UI and HUD elements.

Or

(b) Analyze the challenges and solutions for implementing multiplayer networking in games.

20. (a) Discuss the integration of AI and pathfinding in advanced gameplay programming.

Or

(b) Explain the significance of audio and dialogue in creating engaging game narratives.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Third Semester**

**Game Design and Development**

**WEB GAME DEVELOPMENT**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Which HTML5 tag is used to define a footer for a document?

   (a) <bottom> (b) <footer>

   (c) <end> (d) <tail>

2. What property of the <video> tag is used to autoplay the video?

   (a) loop (b) play

   (c) autoplay (d) start

3. What is the purpose of the array in JavaScript?

   (a) To style elements

   (b) To store multiple values in a single variable

   (c) To perform arithmetic operations

   (d) To create forms

4. Which method is used to send data using JavaScript?
   (a) Submit (b) Send
   (c) Get/Post (d) Transfer

5. What is the purpose of a web development framework?
   (a) To host websites
   (b) To automate email delivery
   (c) To simplify web application development
   (d) To edit images

6. Which technique is used to parse XML data in JavaScript?
   (a) JSON stringify (b) XML DOM parser
   (c) HTML parser (d) CSS selector

7. What is a common method for handling sprite animations in JavaScript?
   (a) Looping sounds (b) Frame switching
   (c) Color changing (d) Text styling

8. What event is used to move a player character in a canvas game?
   (a) Click (b) Drag
   (c) Keypress (d) Hover

9. What is the primary purpose of game UI design?
   (a) To increase game difficulty
   (b) To enhance visual aesthetics
   (c) To provide interactive interfaces for users
   (d) To create storylines

10. How is a mouse event listener typically implemented in JavaScript?
   (a) Using CSS
   (b) Through HTML tags
   (c) With an event listener function
   (d) Using a database

## Section B (5 × 5 = 25)

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

11. (a) Explain the function and importance of the canvas element in HTML5.

Or

(b) Discuss the differences and applications of the <audio> and <video> tags.

12. (a) Describe how object-oriented programming concepts are applied in JavaScript.

Or

(b) Discuss the process of handling form submissions and validations using JavaScript.

13. (a) Explain the benefits of using web development frameworks in building interactive web pages.

Or

(b) Describe the process of JSON and XML parsing in web applications.

14. (a) Discuss the implementation of sprite animations in canvas game development.

Or

(b) Explain the methods used for collision detection in game programming.

15. (a) Describe the key elements of designing a user-friendly game UI.

Or

(b) Discuss the role and implementation of asynchronous web page updates.

## Section C (5 × 8 = 40)

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

16. (a) Analyze the advancements brought by HTML5 in web media capabilities.

Or

(b) Discuss the impact of semantic elements on SEO and accessibility in web design.

17. (a) Explain the role of advanced JavaScript techniques in enhancing user interaction.

Or

(b) Discuss the principles and benefits of object-oriented programming in JavaScript.

18. (a) Evaluate the use of frameworks in developing scalable and maintainable web applications.

Or

(b) Discuss the challenges in creating responsive web designs with JavaScript frameworks.

19. (a) Explore the process and challenges of developing interactive games using canvas.

Or

(b) Analyze the impact of animations and event handling on game dynamics.

20. (a) Discuss the principles of effective game UI design and user interaction.

Or

(b) Explain the integration of asynchronous updates in modern web applications and games.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Third Semester**

**Game Design and Development**

**DIGITAL MODELING – I**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the primary function of the "Detach" tool in NURBS modeling?

   (a) To combine surfaces

   (b) To separate parts of a surface

   (c) To add new curves

   (d) To change surface direction

2. Which Maya tool is used to create a 3D shape from a 2D curve by sweeping it along a path?

   (a) Loft

   (b) Revolve

   (c) Extrude

   (d) Bevel Plus

3. In UV texturing, what is the purpose of creating a normal map?

   (a) To adjust texture colors

   (b) To add surface detail without increasing geometry

   (c) To unwrap UVs

   (d) To create a 2D texture

4. What does the "Bevel" tool do in NURBS modeling?

   (a) Creates a curved edge

   (b) Deletes a surface

   (c) Extends a Surface

   (d) Trims a surface

5. How does the "Reverse Direction" tool affect a surface in Maya?

   (a) Flips the surface normals

   (b) Rebuilds the surface

   (c) Changes the surface color

   (d) Trims the surface edges

6. What is the main advantage of using the "Stitch" tool in surface modeling?

   (a) To create textures

   (b) To combine surfaces

   (c) To add new curves

   (d) To adjust surface lighting

7. What is the primary function of the "Trim Tool" in surface modeling?

(a) To add details

(b) To cut and remove parts of a surface

(c) To smooth a surface

(d) To extend a surface

8. What does the "Project Curve on Surface" tool do?

(a) Projects a surface onto a curve

(b) Projects a curve onto a surface

(c) Creates a new curve

(d) Deletes an existing curve

9. Which tool is used to modify the curve direction in Maya?

(a) Offset Curve

(b) Reverse Direction

(c) Attach

(d) Move Seam

10. What does the "Sculpt Polygon Tool" primarily help with?

(a) Creating textures

(b) Refining polygon shapes

(c) Animating objects

(d) Rendering images

## Section B (5 × 5 = 25)

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

11. (a) Explain the function and usage of the "Duplicate Surface Curves" tool in Maya.

Or

(b) Describe the process of creating and manipulating 3D curves using Maya's Curve Tools.

12. (a) Discuss the importance of "UV Unwrapping" in the context of game texturing.

Or

(b) Explain how normal maps contribute to the visual fidelity of a 3D model.

13. (a) Describe the process of modeling basic props such as weapons and how this is applied in game design.

Or

(b) Explain the role of the EP Curve Tool in creating complex models like vehicles.

14. (a) Discuss the techniques for designing game environments and the factors to consider for effective set design.

Or

(b) Explain how asset creation and character layout impact the overall game design.

15. (a) Describe the process and advantages of using image-based lighting in 3D modeling.

Or

(b) Discuss the features and benefits of the Visor and Sculpt Polygon Tool in game environment design.

**Section C** $(5 \times 8 = 40)$

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

16. (a) Analyze the impact of advanced Maya tools on the efficiency and quality of 3D modeling.

Or

(b) Discuss the significance of manipulating curves and surfaces in creating complex 3D models.

17. (a) Evaluate the use of NURBS modeling tools in achieving high-quality surface details.

Or

(b) Discuss the challenges associated with UV unwrapping and its solutions in game development.

18. (a) Explore the techniques used in modeling and designing weapons and vehicles for video games.

Or

(b) Analyze the role of complex modeling tools in enhancing the realism of game props.

19. (a) Examine the role of environment modeling in creating immersive game worlds.

Or

(b) Discuss the importance of set design and asset creation in developing engaging game experiences.

20. (a) Evaluate the benefits of advanced Maya features, such as the Sculpt Polygon Tool, in game asset creation.

Or

(b) Discuss the integration of texturing and lighting techniques in achieving realistic 3D models for games.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Fourth Semester**

**Game Design and Development**

**DIGITAL MODELING – II**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the primary purpose of using color in textures?

   (a) To add realism

   (b) To increase file size

   (c) To reduce rendering time

   (d) To simplify modeling

2. Which technique is used to minimize the distortion in textures?

   (a) Tiling Textures

   (b) Painting Textures

   (c) Image Compression

   (d) Using Photographs for Textures

3. What is the role of a normal map in texturing?

(a) To define color

(b) To provide surface detail

(c) To control reflectivity

(d) To adjust roughness

4. Which method is used to correct UV distortions in texturing?

(a) Ambient Maps

(b) UV Texture Editor

(c) Normal Maps

(d) Shading and Texturing Surfaces

5. What does the term "lossy compression" refer to in image file formats?

(a) Reducing file size without quality loss

(b) Reducing file size with some quality loss

(c) Increasing file size for better quality

(d) Preserving the original file quality

6. What is a key feature of "3-point lighting" in rendering?

(a) It uses two light sources

(b) It includes a key light, fill light, and back light

(c) It focuses on a single light source

(d) It does not require shadows

7. Which attribute is crucial for creating realistic shadows in Maya?

(a) Light Intensity

(b) Light Color

(c) Shadow Attributes

(d) Material Nodes

8. What is the purpose of "baking maps" in rendering?

(a) To create complex materials

(b) To reduce rendering time by precomputing certain effects

(c) To adjust color settings

(d) To add additional geometry

9. Which technique is used for creating a vehicle model with realistic details?

(a) Primitive Rig

(b) Vehicle Modeling Basics

(c) Rigid Rigging

(d) Animated Meshes

10. What does "modular design" involve in texture creation?

(a) Using a single texture for all assets

(b) Creating reusable texture components

(c) Reducing texture resolution

(d) Adding multiple color layers

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

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

11. (a) Describe the process of creating and painting textures for game assets.

Or

(b) Explain how using photographs can enhance the quality of textures?

12. (a) Discuss the importance of UV unwrapping and its role in texturing props and characters.

Or

(b) Explain how normal maps and ambient maps contribute to realistic texturing.

13. (a) Describe the process and benefits of setting up different render layers and passes in Maya.

Or

(b) Discuss the role of 3-point lighting in achieving effective illumination in a scene.

14. (a) Explain the steps involved in modeling a vehicle for a game, including texturing and material allocation.

Or

(b) Describe the process of creating and rigging an animated vehicle mesh.

15. (a) Discuss the techniques for character creation, focusing on modeling, texturing, and material allocation.

Or

(b) Explain how to handle hair and face mesh details in character modeling for games.

## Section C (5 × 8 = 40)

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

16. (a) Analyze the impact of texture painting and photo-based textures on the visual quality of game assets.

Or

(b) Discuss the advantages and challenges of using image compression techniques in game design.

17. (a) Evaluate the role of different texture maps, such as normal maps and ambient maps, in creating realistic 3D models.

Or

(b) Discuss the significance of UV mapping and texture editing in the game development pipeline.

18. (a) Explore the techniques and considerations for effective lighting in both interior and exterior game environments.

Or

(b) Analyze the process of setting up and optimizing render layers and passes for high-quality game assets.

19. (a) Discuss the key elements involved in vehicle creation for games, including modeling, texturing, and animation.

Or

(b) Evaluate the techniques used in rigging and animating vehicles to achieve realistic movement and functionality.

20. (a) Analyze the process of character creation, focusing on modeling, texturing, and the integration of character elements like hair and face mesh.

Or

(b) Discuss the importance of proportion, layout, and topology in creating realistic and functional game characters.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Fourth Semester**

**Game Design and Development**

**GAME NETWORKING TECHNIQUES**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the function of a router in a network?

   (a) To amplify signals

   (b) To connect multiple networks and route data

   (c) To provide network security

   (d) To create network topologies

2. Which IEEE standard is commonly associated with Ethernet networks?

   (a) 802.11 (b) 802.3

   (c) 802.5 (d) 802.15

3. What does the OSI layer responsible for error detection and correction typically include?

(a) Application Layer

(b) Transport Layer

(c) Network Layer

(d) Data Link Layer

4. Which network protocol provides connectionless communication?

(a) TCP (b) UDP

(c) HTTP (d) FTP

5. What is the primary purpose of Network Address Translation (NAT)?

(a) To encrypt data

(b) To manage network topologies

(c) To translate private IP addresses to public IP addresses

(d) To connect different network types

6. What does the term "spawning" refer to in multiplayer games?

(a) Creating a new game server

(b) Generating new player characters or objects

(c) Establishing network connections

(d) Encrypting network data

7. Which of the following is a common encryption method used for securing wireless networks?

(a) WEP (b) TCP

(c) UDP (d) Bluetooth

8. What is the purpose of a network card?

(a) To manage network traffic

(b) To encode and decode data

(c) To connect a computer to a network

(d) To act as a network router

9. In a client-server network architecture, what is the role of the server'?

(a) To request services

(b) To provide services and resources

(c) To connect devices

(d) To manage network topologies

10. What is a key feature of WPA2 encryption?

(a) It provides lower security than WPA

(b) It uses stronger encryption algorithms

(c) It is less secure than WEP

(d) It is primarily used for wired networks

## Section B (5 × 5 = 25)

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

11. (a) Describe the role of a modem in computer networks and how it differs from a router.

Or

(b) Explain the importance of data encryption and decryption in ensuring network security.

12. (a) Discuss the OSI model and its significance in network communication.

Or

(b) Describe the differences between TCP and UDP protocols and their use cases.

13. (a) Explain the concept of client-server architecture in network multiplayer games.

Or

(b) Discuss the role of non-player characters and their authority in multiplayer network games.

14. (a) Describe the process and importance of setting up a network player in a multiplayer game.

Or

(b) Explain the concept of matchmaking and now it contributes to multiplayer game experiences.

15. (a) Discuss the role of network manager callbacks in managing network behavior.

Or

(b) Explain how host migration works in multiplayer networks and its significance.

**Section C** $(5 \times 8 = 40)$

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

16. (a) Analyze the importance of network topology and IEEE standards in designing efficient computer networks.

Or

(b) Discuss the impact of different encryption methods on network security and data protection.

17. (a) Evaluate the role of the OSI model in troubleshooting network issues and improving communication protocols.

Or

(b) Discuss the advantages and limitations of TCP and UDP in different network scenarios.

18. (a) Explore the concept of multiplayer network systems, including client-server interactions and player authority.

Or

(b) Analyze the challenges and solutions associated with network behavior management in multiplayer games.

19. (a) Discuss the setup and management of multiplayer game environments, including spawning, scene management, and remote actions.

Or

(b) Evaluate the process of customizing multiplayer game setups and its impact on player experience.

20. (a) Analyze the importance of network communication callbacks and messages in maintaining stable multiplayer connections.

Or

(b) Discuss the role of migration manager callbacks and their effect on host migration and network stability.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025**

**Fourth Semester**

**Game Design and Development**

**MOBILE GAME DEVELOPMENT**

**(2023 onwards)**

Duration : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What does data abstraction in Java help achieve?

   (a) Provides a way to handle runtime errors

   (b) Allows hiding complex implementation details

   (c) Enables multiple inheritance

   (d) Provides a method to access private data

2. Which keyword in Java is used to refer to the current object?

   (a) Super (b) This

   (c) Static (d) Final

3. Which of the following is NOT a type of array in Java?

(a) One-dimensional array

(b) Two-dimensional array

(c) Three-dimensional array

(d) Multidimensional array

4. What is the primary purpose of method overriding in Java?

(a) To create a new method with the same name

(b) To extend functionality of a method in a subclass

(c) To hide the original method

(d) To create abstract methods

5. Which class in Java is used to handle exceptions?

(a) Throwable (b) Object

(c) Error (d) Exception

6. What is the role of the Thread class in Java?

(a) To handle array operations

(b) To manage multiple tasks simultaneously

(c) To perform mathematical calculations

(d) To handle input/output operations

7. In Android development, what is the purpose of an Activity?

(a) To manage the UI of an application

(b) To perform background operations

(c) To handle data storage

(d) To connect to the internet

8. What does a Sprite represent in game development?

(a) A game state

(b) A graphical object or character

(c) A type of sensor

(d) A data type

9. Which of the following is used to handle user input in a game?

(a) Input Processor (b) Game Life Cycle

(c) Texture Atlas (d) Sprite Animation

10. What is the purpose of parallax scrolling in game development?

(a) To create realistic physics

(b) To add depth to the game's visual experience

(c) To handle user inputs

(d) To manage game states

## Section B (5 × 5 = 25)

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

11. (a) Explain the concepts of encapsulation and data abstraction in Java with examples.

Or

(b) Describe the role of control statements and conditional statements in Java programming.

12. (a) Discuss the various types of inheritance in Java with examples.

Or

(b) Explain how threading and multi-threading are implemented in Java and their benefits.

13. (a) Describe the basic components and benefits of mobile platforms for game development.

Or

(b) Explain the role of an IDE and build tools in the development environment for mobile applications.

14. (a) Outline the steps involved in setting up a game project using a game development framework.

Or

(b) Discuss the importance of sprite animation and handling input in game development.

15. (a) Explain the concept of screen transitions and particle effects in game design.

Or

(b) Describe how physics engines are integrated into games and their role in simulating realistic physics.

## Section C

$(5 \times 8 = 40)$

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

16. (a) Analyze the role of OOPS concepts like inheritance and polymorphism in enhancing Java programming.

Or

(b) Discuss the significance of exception handling and synchronization in Java applications.

17. (a) Evaluate the benefits and challenges of using mobile platforms for game development, including mobile OS elements and development environments.

Or

(b) Analyze the impact of effective UI management and input handling in mobile game applications.

18. (a) Explore the process of importing assets and setting up game classes in a game development framework.

Or

(b) Discuss the importance of game life cycle management and viewport settings in game development.

19. (a) Analyze the implementation of particle effects and parallax scrolling in enhancing game visuals.

Or

(b) Discuss the role of integrating physics engines in game development and its effect on gameplay realism.

20. (a) Evaluate the challenges of handling sensors and designing levels in game development.

Or

(b) Discuss the process and considerations involved in developing a complete game, including gameplay programming and physics integration.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025.**

**Fourth Semester**

**Game Design and Development**

**DIGITAL MODELING – II**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** (10 × 2 = 20)

Answer **all** the questions.

1. What is translucency in textures?

2. Define tiling textures and their importance.

3. What are ambient maps used for in texturing?

4. Explain the concept of unwrapping in texture mapping.

5. What is the purpose of render layers and passes?

6. Describe the process of baking maps in rendering.

7. What is the importance of body mesh in vehicle creation?

8. Explain the concept of rigid rigging in animation.

9. What is the significance of character proportion in modeling?

10. How are feet modeled in character creation?

## Part B (5 × 5 = 25)

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

11. (a) Explain the impact of surface luminance on textures.

Or

(b) Discuss essential graphic file formats and their uses.

12. (a) Describe the process of creating a color map for characters.

Or

(b) How does reflection influence character skin study?

13. (a) Discuss the role of batch rendering in game development.

Or

(b) Explain the process and benefits of using smart materials.

14. (a) Describe the layout and proportion considerations in vehicle modeling.

Or

(b) Discuss the process of skinning for vehicle models.

15. (a) Explain the steps in creating a character body mesh.

Or

(b) Describe how to handle face mesh in character modeling.

## Part C (3 × 10 = 30)

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

16. (a) Discuss the creation and application of textures in game development.

Or

(b) Explain the methods used in painting textures and their effects.

17. (a) Analyze the process of shading and texturing surfaces in games.

Or

(b) Discuss the techniques used in creating character skin maps.

18. (a) Evaluate the importance of animation in vehicle and character creation.

Or

(b) Describe the challenges and solutions in rigging models for games.

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**B.Sc. DEGREE EXAMINATION, APRIL 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** the questions.

1. What does BSP stand for in computer graphics?
2. What is mesh in video games?
3. How to create a destructible mesh?
4. What are particles in games?
5. Define asset package.
6. Explain styling.
7. Define Health Bar.
8. Explain Death Animation.
9. Examine AT Behavior toolkit.
10. What is the difference between checkpoint and endpoint?

## Part B (5 × 5 = 25)

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

11. (a) Differentiate between shaders and textures.

Or

(b) How to create and edit a Terrain for game?

12. (a) How are game cinematic sequences created?

Or

(b) Write about Level Streaming Volumes.

13. (a) Briefly describe the health systems used in video games.

Or

(b) Why set the tone important to the main menu of a game?

14. (a) Using PUBG, explain the concept of diminishing game area.

Or

(b) Explain collecting, scoring and building the game from player perspective.

15. (a) What is the difference between structured and unstructured meshes? Give examples.

Or

(b) Which objects can be used to display a pop-up message?

## Part C

$(3 \times 10 = 30)$

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

16. (a) How to make the lighting in a game realistic? Describe the characteristics of a light source and its methods.

Or

(b) Write an essay on material creation for games. Explain the modern ways to create assets.

17. (a) Describe the goals of the HUD Blueprint and the main characteristics of player controllers.

Or

(b) What is skeletal mesh and how to find a skeletal mesh in the browser? Explain about positioning a skeletal mesh.

18. (a) Explain the process of decorating a level so that gaming players can use it.

Or

(b) Take any android game and explain the basic mechanisms of the player activities.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025.**

**Fifth Semester**

**Game Design and Development**

**ARTIFICIAL INTELLIGENCE**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** $(10 \times 2 = 20)$

Answer **all** the questions.

1. What are AI techniques and their applications?
2. Explain production system characteristics in AI.
3. What is patterned roaming in game AI?
4. Describe the advantages of behavioral AI.
5. Define non-deterministic AI.
6. What is the purpose of flocking and steering AI?
7. Explain forward chaining in inference systems.
8. What is Bayesian theory?
9. Describe the roles of expert systems.
10. What is meta-knowledge in AI?

## Part B (5 × 5 = 25)

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

11. (a) How do AI problems influence model design?

Or

(b) Discuss issues in designing search programs in AI.

12. (a) Explain the process of creating grid-based canvases in game AI.

Or

(b) Discuss the differences between game AI and general AI.

13. (a) How do finite state machines function in AI systems?

Or

(b) Describe the use of rule-based systems in AI.

14. (a) Analyze the rule value approach in AT reasoning.

Or

(b) Discuss the Dempster-Shafer theory and its applications.

15. (a) Evaluate the architecture of expert systems and their impact.

Or

(b) Explain the combination of AI techniques for intelligent agent creation.

## Part C (3 × 10 = 30)

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

16. (a) Discuss the significance of AI in solving complex problems using search strategies.

Or

(b) Evaluate the impact of AI techniques on gaming innovation.

17. (a) Explain the importance of AI path finding methods in enhancing game realism.

Or

(b) Discuss the application and benefits of fuzzy state machines in AI.

18. (a) Analyze the future prospects of AI in strategic planning and decision-making.

Or

(b) Describe how expert systems revolutionize problem-solving in specific domains.

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**B.Sc. DEGREE EXAMINATION, APRIL 2025.**

**Fifth Semester**

**Game Design and Development**

**EMERGING TRENDS**

**(2019 onwards)**

Duration : 3 Hours Maximum : 75 Marks

**Part A** $(10 \times 2 = 20)$

Answer **all** the questions.

1. Define virtual reality and its main goals.
2. What is a bird's-eye view in VR software?
3. Explain the axis-angle representation in rotations.
4. What are quaternions used for in VR?
5. Describe the three interpretations of light.
6. What is refraction, and why is it important?
7. Define augmented reality (AR).
8. What is feature extraction in AR?
9. What is the role of sensing in IoT?
10. Explain machine-to-machine communication.

## Part B (5 × 5 = 25)

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

11. (a) Discuss the importance of geometric modeling in VR.

Or

(b) How are matrices used in VR transformations?

12. (a) Describe the process of converting and multiplying rotations using quaternions.

Or

(b) Explain the concept of viewport transformation.

13. (a) Analyze the factors affecting light intensity and perception.

Or

(b) How is tilt drift correction achieved in orientation tracking?

14. (a) Compare sensor-based and vision-based tracking in AR.

Or

(b) Explain the process of geometric verification in AR feature matching.

15. (a) Discuss the role of communication protocol in IoT networks.

Or

(b) What are the key features of sensor clouds in IoT?

## Part C (3 × 10 = 30)

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

16. (a) Evaluate the impact of VR on sensory perception and user experience.

Or

(b) Discuss the significance of geometric transformations in VR environments.

17. (a) Explain how orientation tracking is implemented in VR using camera tracking.

Or

(b) Analyze the challenges and solutions in motion perception for VR applications.

18. (a) Describe the potential applications of IoT in smart grids and data analytics.

Or

(b) Discuss the integration of neuro gaming and BCI in modern technology.

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