C–4599

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

**First Semester**

**UI Design and Development**

**PROGRAMMING AND SCRIPTING**

**(2023 onwards)**

Duration : 3 Hours                    Maximum : 75 Marks

**Part A**                    (10 × 1 = 10)

Answer **all** questions.

1.    What is the purpose of templates in programming?

(a)    To    define constants

(b)    To store data temporarily

(c)    To perform mathematical calculations

(d)    To create generic functions or classes

2.    Which programming construct is used to repeat a block of code until a certain condition is met?

(a)    Conditional Statements

(b)    Functions

(c)    Looping

(d)    Arrays

3. Which tag is used to define a paragraph in HTML?

   (a)  &lt;par&gt;                    (b)  &lt;p&gt;

   (c)  &lt;para&gt;                   (d)  &lt;paragraph&gt;

4. Which tag is used to create a numbered list in HTML?

   (a)  &lt;ul&gt;                     (b)  &lt;ol&gt;

   (c)  &lt;li&gt;                     (d)  &lt;div&gt;

5. Which HTML element is used to create a set of navigation links?

   (a)  &lt;footer&gt;                 (b)  &lt;nav&gt;

   (c)  &lt;aside&gt;                  (d)  &lt;section&gt;

6. What is the purpose of the &lt;form&gt; tag in HTML?

   (a)  To define a table structure

   (b)  To create a frame

   (c)  To define a section of a webpage

   (d)  To create an interactive form for user input

7. What does CSS stand for in web development?

   (a)  Cascading Style Sheets

   (b)  Creative Styling Syntax

   (c)  Centralized Styling System

   (d)  Cascading Styling Solutions

C–4599

8. Which type of style sheet allows for the separation of presentation and content in web development?

   (a) Internal Style Sheet

   (b) External Style Sheet

   (c) Inline Style Sheet

   (d) Embedded Style Sheet

9. What are CSS variables, also known as?

   (a) Constant values

   (b) Static values

   (c) Custom properties

   (d) Global properties

10. Which CSS feature allows for the creation of responsive layouts based on the size of the viewport?

    (a) Media Query        (b) Flexbox

    (c) Transition         (d) Animation

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

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

11. (a) Explain the concept of operators in programming, including arithmetic, comparison, and logical operators.

    Or

    (b) Discuss the purpose and benefits of using loops in programming.

**C–4599**

12. (a) Explore the functionalities of the <body> tag in HTML.

Or

(b) Evaluate the significance of heading tags (<h1> to <h6>) in HTML documents.

13. (a) Explore the concept of HTML entities, symbols, and emojis in web development.

Or

(b) Investigate the use of frames in HTML for creating multi-part webpages.

14. (a) Analyze the CSS properties related to font styling, including font-family, font-size, font-weight, and font-style.

Or

(b) Discuss the CSS properties and techniques for styling text content, such as color, text-align, text-decoration, and line-height.

15. (a) Explain the concept of masking in web design.

Or

(b) Discuss the importance of responsive design in modern web development.

**C–4599**

**Part C** (5 × 8 = 40)

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

16. (a) Define functions and discuss their role in modular programming. Explain the advantages of using functions to organize code and improve code reusability.

Or

(b) Define structures and discuss their role in organizing related data elements in a program. Explain the concept of Object-Oriented Programming (OOP) and its core principles.

17. (a) Investigate the application of formatting tags in HTML, focusing on the <b>, <i>, <u>, and <strong> tags. Explain their respective purposes and discuss best practices for using them to style text content on webpages.

Or

(b) Assess the role of the <font> tag in HTML for text formatting. Discuss its deprecated status and alternatives for styling text, emphasizing the importance of using CSS for styling purposes.

18. (a) Discuss the role of HTML media tags, specifically the <audio> and <video> tags, in embedding multimedia content into webpages. Explain how these tags are used to integrate audio and video files into web documents.

Or

(b) Investigate the purpose and functionality of the <nav> element in HTML. Discuss how the <nav> tag is used to define navigation links within a webpage, including primary and secondary navigation menus.

C–4599

19. (a) Explore the CSS properties for styling images, including width, height, margin, padding, border, and outline.

Or

(b) Discuss the concepts of navigation design in web development and explore CSS techniques for styling navigation menus and links.

20. (a) Explore the use of CSS transitions in web design. Discuss how transitions can be applied to elements to create smooth and subtle animations when changing property values.

Or

(b) Explain the concept of website layout in web design. Discuss different layout techniques and their respective advantages and disadvantages.

———————

**C–4599**

C–4600

Sub. Code
82715

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

**First Semester**

**UI Design and Development**

**COMMUNICATION AND MEDIA DESIGN**

**(2023 onwards)**

Duration : 3 Hours          Maximum : 75 Marks

**Part A**          (10 × 1 = 10)

Answer **all** questions.

1.    What term refers of the process of exchanging information, ideas, and feelings between individuals or groups?

   (a)   Data processing   (b)   Communication

   (c)   Networking        (d)   Multitasking

2.    Which of the following is NOT a type of communication?

   (a)   Verbal             (b)   Nonverbal

   (c)   Written            (d)   Multitasking

3.    What term refers to the study of how people interact with computers and other digital devices?

   (a)   Computer Science

   (b)   Human-Computer Interaction (HCI)

   (c)   Artificial Intelligence (AI)

   (d)   Cyber security

4.  Which of the following is NOT a fundamental aspect of User Interface (UI) design?
    (a)  Accessibility
    (b)  Aesthetics
    (c)  Efficiency
    (d)  Hardware compatibility

5.  What are the elements of User Experience (UX) design?
    (a)  User Interface (UI) and Human-Computer Interaction (HCI)
    (b)  Accessibility and Usability
    (c)  Visual design and Interaction design
    (d)  Aesthetics and technical functionality

6.  What does Customer Experience (CX) encompass?
    (a)  Only digital interactions
    (b)  Only physical interactions
    (c)  All interactions a customer with a brand
    (d)  Only marketing interactions

7.  What method is commonly used for generating and organizing ideas by visually representing.
    (a)  Pilot study       (b)  Mind map
    (c)  6 thinking hats   (d)  Ergonomics

8.  What concept refers to the systematic study of how humans interact with their environment and the design of products for optimal human use?
    (a)  Idea generation   (b)  Semiotics
    (c)  Ergonomics        (d)  Mind mapping

9.  What does the term "conceptual" refer to in future trends discussions?
    (a)  Ideas and theories about the future direction of technology
    (b)  Practical applications of existing technology
    (c)   Current trends in technology adoption
    (d)  Technological innovations from the past

**C–4600**

10. What is the purpose of a software version control system?
    (a) To manage project finances
    (b) To track changes to software code
    (c) To design user interfaces
    (d) To conduct user testing

## Part B  (5 × 5 = 25)

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

11. (a) Explain how operant conditioning principles can be applied to communication and learning processes.

    Or

    (b) Explore the concept of user-centric design in the context of interactive multimedia systems.

12. (a) Discuss the role of software rating boards in regulating the content and accessibility of digital media platforms.

    Or

    (b) Analyze the ethical implications of copywriting in new media.

13. (a) Discuss the principles and process of UX Design Thinking.

    Or

    (b) Explore the elements of User Experience (UX) design.

14. (a) Analyze the notion of more complex signs semiotics.

    Or

    (b) Explore the relationship between semiotics and media.

15. (a) Analyze the concept of ubiquitous computing and its implications for software development.

    Or

    (b) Explore future trends in technology from conceptual, cultural, and technological perspectives.

3

**C–4600**

**Part C** (5 × 8 = 40)

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

16. (a) Explain how IMM differs from traditional multimedia and its significance in enhancing user engagement and interactivity.

Or

(b) Explore the historical development of computers and interaction, focusing on significant advancements in human-computer interaction (HCI) and user interface design.

17. (a) Examine the legal and ethical dimensions of contracts in the digital age.

Or

(b) Explore knowledge representation techniques in artificial intelligence and information systems.

18. (a) Analyze the concept of Customer Experience (CX) and its relationship to User Experience (UX).

Or

(b) Explore the role of Interaction Design (IxD) and Human-Computer Interaction (HCI) in UX design.

19. (a) Define semiotics and its significance in multimedia content creation. Explain how semiotics studies signs, symbols, and their meanings, and how these elements are utilized in conveying messages in multimedia context.

Or

(b) Discuss the concept of "assign" in semiotics and its roe in understanding the creation and interpretation of signs and symbols.

20. (a) Discuss conceptual future trends in technology, focusing on visionary ideas and speculative innovations.

Or

(b) Discuss the purpose and benefits of software version control systems, such as Git and subversion.

—————

4

C–4600

# B.Sc. DEGREE EXAMINATION, APRIL 2025

## Second Semester

## UI Design and Development

## UI DEVELOPMENT I

## (2023 onwards)

Duration : 3 Hours        Maximum : 75 Marks

**Part A**        (10 × 1 = 10)

Answer **all** questions.
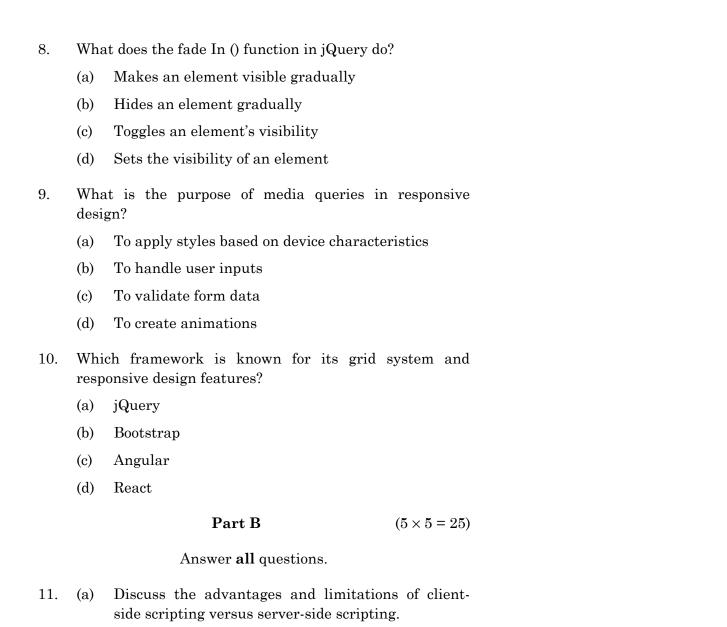
1. What is the primary purpose of client-side scripting?

   (a) Server communication

   (b) Form validation

   (c) Database management

   (d) Network security

2. In which type of scripting are pointers commonly used?

   (a) Server-side scripting

   (b) Client-side scripting

   (c) Both client and server-side scripting

   (d) Not used in scripting

3.  What is the function of the get method in form handling?

    (a)  Submitting data to the server

    (b)  Retrieving data from the server

    (c)  Validating user inputs

    (d)  Encrypting data

4.  Which of the following is a valid way to pass data to a function in scripting?

    (a)  Pass by Value

    (b)  Pass by Reference

    (c)  Call by Value

    (d)  All of the above

5.  In JavaScript, what does event.preventDefault( ) do?

    (a)  Changes the event's target

    (b)  Cancels the default action associated with the event

    (c)  Stops the event from bubbling up

    (d)  None of the above

6.  Which of the following is NOT a data type in JavaScript?

    (a)  Number          (b)  String

    (c)  Array           (d)  Union

7.  What is a callback function in JavaScript?

    (a)  A function that returns another function

    (b)  A function passed into another function as an argument

    (c)  A function that gets called automatically

    (d)  A function that handles form submissions

**C–4601**

8.  What does the fade In () function in jQuery do?

    (a)  Makes an element visible gradually

    (b)  Hides an element gradually

    (c)  Toggles an element's visibility

    (d)  Sets the visibility of an element

9.  What is the purpose of media queries in responsive design?

    (a)  To apply styles based on device characteristics

    (b)  To handle user inputs

    (c)  To validate form data

    (d)  To create animations

10. Which framework is known for its grid system and responsive design features?

    (a)  jQuery

    (b)  Bootstrap

    (c)  Angular

    (d)  React

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

Answer **all** questions.

11. (a)  Discuss the advantages and limitations of client-side scripting versus server-side scripting.

                        Or

    (b)  Explain how pointers are used in server-side scripting and their impact on program efficiency.

**C–4601**

12. (a) Describe the role of the Document Object Model (DOM) in JavaScript and how it interacts with HTML.

Or

(b) Compare and contrast one-dimensional and two-dimensional arrays in JavaScript.

13. (a) Outline the steps involved in building a client-side quiz application using jQuery.

Or

(b) Explain how JSON parsing is handled in JavaScript and its use in web applications.

14. (a) Define responsive design principles and their importance in modern web development.

Or

(b) Describe the process of using media queries to create a responsive design.

15. (a) Explain the features of Bootstrap's grid system and its advantages for responsive design.

Or

(b) Discuss the role of Bootstrap elements in building responsive layouts.

4                          **C–4601**

**Part C** (5 × 8 = 40)

Answer **all** questions.

16. (a) Analyze the impact of scripting languages on web development, focusing on both client-side and server-side scripting.

Or

   (b) Discuss the evolution of scripting languages and their influence on modern web development practices.

17. (a) Evaluate the effectiveness of JavaScript frameworks like jQuery in enhancing user interaction and performance.

Or

   (b) Compare the features and functionalities of various JavaScript frameworks used for web development.

18. (a) Discuss the methods and best practices for handling animations and dynamic effects using JavaScript and jQuery.

Or

   (b) Explain the challenges and solutions associated with file handling and data parsing in JavaScript applications.

19. (a) Assess the significance of responsive design principles and how they contribute to user experience across different devices.

Or

   (b) Analyze the role of media queries and viewport settings in achieving a responsive web design.

5

**C–4601**

20. (a) Explore the benefits and limitations of using Bootstrap for responsive web design, including its grid system and components.

Or

(b) Compare Bootstrap with other CSS frameworks in terms of flexibility, ease of use, and customization.

————————

**C–4601**

# B.Sc. DEGREE EXAMINATION, APRIL 2025

## Second Semester

## UI Design and Development

## UX DESIGN I

## (2023 onwards)

Duration : 3 Hours      Maximum : 75 Marks

**Part A**      (10 × 1 = 10)

Answer **all** questions.

1. What is the primary focus of visual design in UX?

 (a) Unity and variety

 (b) User interviews

 (c) Ethnographic observations

 (d) Content strategy

2. Which principle emphasizes minimizing the number of elements in a design?

 (a) Balance

 (b) Economy of elements

 (c) Focal point

 (d) Affordance

3. What research method involves direct interaction with users to gather feedback?

   (a) Survey

   (b) Contextual enquiry

   (c) Empathy map

   (d) Heuristic review

4. Which of the following is a qualitative research technique?

   (a) Surveys

   (b) Focus groups

   (c) Statistical analysis

   (d) Heuristic evaluation

5. What is the purpose of creating personas in UX design?

   (a) To identify marketing strategies

   (b) To analyze competitor products

   (c) To represent user profiles and needs

   (d) To define business goals

6. Which method is used to understand users' cultural and social contexts?

   (a) Ethnography

   (b) Contextual enquiry

   (c) Survey

   (d) Heuristic review

**C–4602**

7. What is a key component of the UXD ecosystem?

   (a) Creating personas

   (b) Identifying project parameters

   (c) Conducting surveys

   (d) Analyzing competitors

8. In UX design, what does "responsive design" refer to?

   (a) Designing for various screen sizes and devices

   (b) Creating user personas

   (c) Conducting heuristic evaluations

   (d) Developing content strategies

9. What does the empathy map help in UX design?

   (a) Defining business goals

   (b) Understanding user feelings and needs

   (c) Creating marketing campaigns

   (d) Analyzing competitors

10. Which aspect of UX design involves analyzing user interactions with a product?

   (a) Research analysis

   (b) Interaction design

   (c) Content strategy

   (d) Persona creation

**C–4602**

**Part B**       (5 × 5 = 25)

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

11. (a) Discuss the significance of the golden rules of UX design and their impact on user experience.

Or

(b) Explain the concept of focal point in visual design and its role in creating effective user interfaces.

12. (a) Describe the process of conducting a user interview and how it contributes to UX research.

Or

(b) Compare and contrast quantitative and qualitative research methods in the context of UX design.

13. (a) Outline the steps involved in creating user personas and how they can influence design decisions.

Or

(b) Explain the role of ethnographic observations in understanding user behavior and needs.

14. (a) Discuss the key components of the UXD ecosystem and their importance in project development.

Or

(b) Explain how stakeholder meetings and competitor analysis contribute to the UX design process.

15. (a) Define content strategy and its importance in UX design.

Or

(b) Describe how flexible content strategies can improve user experience across different devices.

**C–4602**

**Part C**                           (5 × 8 = 40)

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

16. (a) Analyze the principles of UX design, focusing on how they contribute to creating effective and engaging user interfaces.

Or

(b) Discuss the impact of visual design principles, such as unity and balance, on user experience and interface aesthetics.

17. (a) Evaluate the different user research methods and their effectiveness in gathering meaningful insights for UX design.

Or

(b) Compare various research techniques, including user interviews and surveys, in terms of their contribution to understanding user needs.

18. (a) Examine the role of ethnography and cultural anthropology in shaping user personas and enhancing UX design.

Or

(b) Discuss how user observation methods and persona creation can be integrated to develop comprehensive user profiles.

19. (a) Analyze the components of the UXD ecosystem and how they align with project goals and user needs.

Or

(b) Explore the process of creating a UXD proposal and its significance in aligning project objectives with user expectations.

5                                    **C–4602**

20. (a) Discuss the strategies for developing a flexible content strategy and how it can be applied to various digital platforms.

Or

(b) Evaluate the importance of content personalization in UX design and its impact on user engagement and satisfaction.

———————

**C–4602**

| C–4603 | | Sub. Code |
|---|---|---|
| | | 82733 |

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

**Third Semester**

**UI Design and Development**

**UI VISUAL DESIGN**

**(2023 onwards)**

Duration : 3 Hours                    Maximum : 75 Marks

**Part A**                    (10 × 1 = 10)

Answer **all** questions.

1. Which design principle involves creating emphasis through color and typography?

   (a) Raster graphics

   (b) Blending

   (c) UI Theme

   (d) Typography

2. What is the purpose of 3D buttons in UI design?

   (a) To improve font readability

   (b) To add depth and realism to the interface

   (c) To create a grid layout

   (d) To design mockups

3. What should be prioritized in poster design principles?

   (a) Detailed textures

   (b) Clear and engaging visuals

   (c) Complex color gradients

   (d) Web-safe fonts

4. Which design concept focuses on adapting layouts for different devices and screen sizes?

   (a) Raster graphics

   (b) Grid layout

   (c) Responsive design

   (d) Icon design

5. What is a key advantage of using vector graphics in UI design?

   (a) Fixed resolution

   (b) Scalability without quality loss

   (c) Pixel-based details

   (d) Limited to print media

6. What does mobile GUI design primarily focus on?

   (a) Creating detailed animations

   (b) Optimizing user interfaces for small screens

   (c) Designing web templates

   (d) Developing print media

**C–4603**

7.  Which approach involves designing websites starting with mobile devices and then scaling up?

    (a) Responsive design

    (b) Mobile first approach

    (c) Web template design

    (d) Grid layout design

8.  What characterizes metro UI design?

    (a) Realistic textures and shadows

    (b) Minimalist and flat design

    (c) Detailed 3D elements

    (d) Complex color gradients

9.  Which factor is crucial when exporting designs for mobile devices?

    (a) High resolution for print

    (b) Optimization for screen size and resolution

    (c) Use of web-safe fonts

    (d) 3D effects

10. What is the purpose of design optimization?

    (a) To enhance visual appeal

    (b) To improve performance and efficiency

    (c) To create detailed animations

    (d) To expand design elements

**C–4603**

**Part B** (5 × 5 = 25)

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

11. (a) Discuss the role of typography and color schemes in creating an effective UI theme.

Or

(b) Explain the impact of realistic buttons and 3D effects on user interaction and experience.

12. (a) Describe the core principles of layout design for magazines and their application to web design.

Or

(b) Compare the principles of poster design and web layout design, focusing on visual impact and functionality.

13. (a) Explain the significance of mobile GUI guidelines for Android and iOS and their impact on user experience.

Or

(b) Discuss the differences between raster and vector graphics and their respective uses in UI design.

14. (a) Describe the standards for designing responsive web applications and how they address various device requirements.

Or

(b) Explain the importance of a mobile-first approach in web design and its advantages over traditional design methods.

4

**C–4603**

15. (a) Discuss the process of creating mockups for web and mobile designs, and how they contribute to design optimization.

Or

(b) Explain the importance of exporting designs for different mediums and the considerations for each medium (web, mobile, print).

**Part C** (5 × 8 = 40)

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

16. (a) Evaluate the role of raster graphics in UI design and their impact on visual elements and user experience.

Or

(b) Discuss how lights and shadows enhance the realism and depth of UI elements.

17. (a) Analyze the principles of layout design, including grid layouts and responsive grids, and their impact on web design.

Or

(b) Explore the significance of effective poster design principles and their application to digital media.

18. (a) Examine the role of mobile GUI design guidelines in creating user-friendly interfaces for Android and iOS platforms.

Or

(b) Discuss the importance of animations in UI design, including their impact on user interaction and visual appeal.

**C–4603**

19. (a) Analyze the global standards for web design, including color, fonts, and style guides, and their role in maintaining design consistency.

Or

(b) Evaluate the mobile-first approach and its influence on responsive web design and user experience.

20. (a) Discuss the process of creating and utilizing mockups for responsive web and mobile design, and their role in the design process.

Or

(b) Explore the challenges and best practices for optimizing designs for various platforms, including web, mobile, and print.

—————

6

C–4603

| C–4604 | | Sub. Code |
|--------|--|-----------|
| | | **82734** |

## B.Sc. DEGREE EXAMINATION, APRIL 2025

### Third Semester

### UI Design and Development

### UI DEVELOPMENT II

### (2023 onwards)

Duration : 3 Hours            Maximum : 75 Marks

**Part A**            (10 × 1 = 10)

Answer **all** questions.

1.  Which Bootstrap component is used to display contextual alerts or notifications?

    (a)  Navbars            (b)  Modals

    (c)  Alerts            (d)  Badges

2.  What is a key advantage of using Bootstrap's Dropdown Plugin?

    (a)  Enhancing text visibility

    (b)  Creating interactive, dropdown menus

    (c)  Building responsive grids

    (d)  Adding 3D effects to buttons

3. What is a key feature of Node.js related to its non-blocking nature?

   (a) Buffers

   (b) Streams

   (c) Asynchronous I/O

   (d) Synchronous execution

4. What is the role of Express.js in the Node.js ecosystem?

   (a) To provide a framework for building user interfaces

   (b) To simplify server-side scripting and routing

   (c) To manage database queries

   (d) To handle file uploads

5. Which AngularJS feature allows you to create reusable components?

   (a) Services

   (b) Directives

   (c) Filters

   (d) Controllers

6. What is the primary function of the app . use () method in Express.js?

   (a) To define routes

   (b) To handle static files

   (c) To add middleware functions

   (d) To connect to the database

7. What does AngularJS use to manage and organize its different parts, like controllers and services?

   (a) Modules          (b) Templates

   (c) Views            (d) Filters

**C–4604**

8. Which operation in MongoDB is used to modify existing documents?

   (a) Insert      (b) Update

   (c) Find      (d) Delete

9. How does Express.js handle form data submitted via HTTP POST requests?

   (a) Through middleware

   (b) By querying the database

   (c) Using AngularJS

   (d) With static file serving

10. What is the purpose of the 'Labels and Badges' component in Bootstrap?

   (a) To create responsive layouts

   (b) To display small pieces of information or status

   (c) To manage user sessions

   (d) To handle HTTP requests

**Part B**      (5 × 5 = 25)

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

11. (a) Describe the role of the Modals Plugin in Bootstrap and its use cases in web design.

   Or

   (b) Explain the function and implementation of the Tooltip Plugin in Bootstrap.

**C–4604**

12. (a) Discuss how the Express Web Framework supports database handling in Node.js applications.

Or

(b) Explain the process of building an HTTP server using Node.js and its key components.

13. (a) Analyze the architecture of AngularJS and how its core components interact to facilitate dynamic web development.

Or

(b) Discuss the methods of form validation and binding in AngularJS and their impact on user input handling.

14. (a) Explain the process of routing in Express.js and its significance in handling HTTP requests.

Or

(b) Discuss how middleware in Express.js can be used for handling authentication and session management.

15. (a) Describe how MongoDB's aggregation framework enhances data querying and analysis.

Or

(b) Discuss the role of MongoDB Charts in visualizing and interpreting MongoDB data.

**C–4604**

**Part C** (5 × 8 = 40)

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

16. (a) Evaluate the functionality and benefits of Bootstrap's plugins (e.g., Modals, Alerts, Dropdowns) in enhancing user interaction and interface design.

Or

(b) Discuss the role of Bootstrap's responsive design features in creating adaptive and user-friendly web applications.

17. (a) Analyze the advantages of using Node.js for asynchronous operations and its impact on server performance.

Or

(b) Explore the integration of Node.js with various frameworks and libraries to build robust web applications.

18. (a) Examine AngularJS's architecture, focusing on the role of directives, services, and controllers in building single-page applications.

Or

(b) Discuss how AngularJS's data binding and filtering capabilities contribute to dynamic and responsive web interfaces.

5 **C–4604**

19. (a) Evaluate the capabilities of Express.js in simplifying RESTful API development and handling server-side logic.

Or

(b) Discuss the approach and tools for debugging and error handling in Express.js applications.

20. (a) Analyze MongoDB's indexing and querying capabilities, and their impact on performance and data management.

Or

(b) Explore how MongoDB's integration with Node.js facilitates efficient data handling and application development.

—————————

C–4604

| C–4605 | Sub. Code 82736 |
|---|---|

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

**Third Semester**

**UI Design and Development**

**UX DESIGN – II**

**(2023 onwards)**

Duration : 3 Hours       Maximum : 75 Marks

**Part A**       (10 × 1 = 10)

Answer **all** questions.

1. ————— is a paper prototype.
   (a) A digital mock-up of a design
   (b) A hand-drawn representation of a user interface
   (c) A fully functional application
   (d) A style guide for design elements

2. ————— is a design principle involves grouping related items together to create a relationship between them.
   (a) Alignment       (b) Proximity
   (c) Contrast       (d) Repetition

3. ————— method involves gathering specific words or phrases that prompt users to take action or understand content.
   (a) Card sorting
   (b) Tree testing
   (c) Trigger word elicitation
   (d) Function familiarity test

4. Primary goal of card sorting for information architects is ——————.

   (a) To create a visual design

   (b) To organize information based on user expectations

   (c) To test software functionality

   (d) To develop coding skills

5. —————— is a key design principle for wireframes.

   (a) Focus on detailed color palettes

   (b) Emphasize structure and functionality over aesthetics

   (c) Create realistic animations

   (d) Use complex coding elements

6. —————— element is essential in a wireframe.

   (a) Detailed color schemes

   (b) Place holder text and images

   (c) Advanced animations

   (d) High-resolution images

7. —————— are the key elements should be included in the anatomy of a funnel diagram.

   (a) Only the starting and ending points of user flow

   (b) Steps in the user flow, number of users at each step, and drop-off points.

   (c) Irrelevant user data and statistics

   (d) Personal opinions of the designers

**C–4605**

8. What is a key features of a good funnel diagram?

   (a) It includes unrelated data points

   (b) It focuses on a single user action

   (c) It uses only text without any visuals

   (d) It clearly shows the user flow and highlights where users drop off

9. —————— is a primary focus of mobile UX design?

   (a) Creating complex graphics

   (b) Optimizing the user interface for touch interactions and smallers screens

   (c) Adding as many features as possible

   (d) Ensuring compatibility with outdated technology

10. —————— is a critical aspect of mobile usability.

   (a) High–resolution graphics

   (b) Long loading times

   (c) Easy navigation and intuitive interfaces

   (d) Complex animations

**Part B**        (5 × 5 = 25)

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

11. (a) Explain the role of contrast in visual design.

   Or

   (b) Describe the principle of repetition in visual design.

12. (a) Explain the process and benefits of card sorting for information architects.

   Or

   (b) What is a tree test and how is it conducted?

3       **C–4605**

13. (a) Explain the concept of responsive design and its significance in modern web design.

Or

(b) Describe the specific considerations that need to be taken into account when wireframing for mobile devices.

14. (a) Discuss the main goals of creating an effective usability test report.

Or

(b) Describe the key elements that should be included in the anatomy of a funnel diagram.

15. (a) What factors should designers consider when designing for specific mobile devices

Or

(b) Discuss strategies for optimizing hyperlink usage to improve mobile usability and accessibility.

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

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

16. (a) Discuss the importance of alignment in visual design. How does proper alignment contribute to the overall effectiveness and professionalism of a design?

Or

(b) What is the principle of proximity in visual design? Illustrate how proximity can be used to organize information and create relationships between different design elements.

4

**C–4605**

17. (a) Define trigger word elicitation and explain its significance in user experience design. How can this method be used to improve the effectiveness of call-to-action elements on a webpage?

Or

(b) Discuss the concept of a web board in the context of collaborative design and development. How can a web board facilitate communication and collaboration among team members?

18. (a) Explain the strategic use of color in wireframes. When is it appropriate to introduce color, and what purpose does it serve in the context of wireframing?

Or

(b) Discuss the key design principles that should be considered when creating wireframes. How do these principles influence the usability and effectiveness of the final design.

19. (a) Discuss what information is primarily communicated through a funnel diagram. Why is this information crucial for understanding user behaviour?

Or

(b) Discuss the appropriate timing for creating a usability test report. What factors should be considered when deciding when to produce this report?

**C–4605**

20. (a) Explain the concept of "Customers determine your user mobile experience". How can designers effectively incorporate user feedback into mobile UX design to create user-cantered experiences.

Or

(b) Discuss the challenges and best practices in adapting layouts for various mobile devices. How should designers approach layout adaptation to ensure consistency and usability across different screen sizes?

————————

6

C–4605

| C–4606 | Sub. Code |
|---|---|
| | 82743 |

## B.Sc. DEGREE EXAMINATION, APRIL 2025

### Fourth Semester

### UI Design and Development

### WEB APPLICATION DEVELOPMENT

### (2023 onwards)

Duration : 3 Hours                    Maximum : 75 Marks

### Part A                    (10 × 1 = 10)

### Answer **all** questions.

1.  Which function is used to read a file line by line in PHP?

    (a)  'move_ uploaded _ file()'

    (b)  'upload_ file()'

    (c)  'move_ file()'

    (d)  'file_upload()'

2.  Which of the following is not a type of array in PHP?

    (a)  Indexed Array

    (b)  Associative Array

    (c)  Multidimensional Array

    (d)  Complex Array

3. Which PHP framework follows the MVC architecture?

   (a) Laravel

   (b) Word press

   (c) Joomla

   (d) Magento

4. What is URL rewriting used for in PHP?

   (a) To rewrite HTML content dynamically

   (b) To change the URL of an uploaded file

   (c) To make URLs more user-friendly and SEO-friendly

   (d) To modify database queries

5. Which of the following is not a component if database architecture?

   (a) Data Abstraction

   (b) Data Independence

   (c) Data Mining

   (d) Schema

6. In an Entity-Relationship (ER) model, an entity is represented by:

   (a) A square

   (b) A diamond

   (c) A circle

   (d) A rectangle

**C–4606**

7. Which SQL command is used to create a stored procedure?

   (a) CREATE PROCEDURE

   (b) CREATE FUNCTION

   (c) CREATE ROUTINE

   (d) CREATE QUERY

8. Which of the following is NOT a common practice for optimizing database performance?

   (a) Indexing frequently searched columns

   (b) Normalizing the database

   (c) Using sub queries instead of joins

   (d) Using connection pooling

9. Which of the following is NOT a type of web service?

   (a) SOAP          (b) REST

   (c) FTP           (d) JOSN-RPC

10. Which protocol is commonly used to connect web services?

   (a) FTP           (b) HTTP

   (c) SMTP          (d) POP3

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

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

11. (a) Write a PHP script to concatenate three strings and display the result.

   Or

   (b) Write a PHP script to read the contents of a text file and display each line on a web page.

3                    **C–4606**

12. (a) Describe how to create a new image and add text to it using PHP's GD library. Provide a code example.

Or

(b) Discuss the advantages and disadvantages of using image manipulation in PHP.

13. (a) Explain the differences between hierarchical, network, and relational database models.

Or

(b) Describe the three-tier architecture of a database system.

14. (a) Explain the difference between aggreagate functions and scalar functions in SQL.

Or

(b) Describe the advantages of using stored procedures in a database system.

15. (a) Describe the key components of a web service architecture.

Or

(b) Compare and contrast SOAP and REST web services.

4 **C–4606**

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

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

16.  (a)  Explain how to handle to multiple file uploads in PHP. Provide a code example demonstrating how to handle and save multiple uploaded files.

Or

(b)  Write a PHP script to sort an associative array by its keys and values. Display the sorted arrays.

17.  (a)  Describe the Model-view-Controller (MVC) architecture. How does it separate concerns in a web application? Provide an example of each component in the MVC pattern.

Or

(b)  Explain how cookies are sued in PHP to manage state. Write a script to set and retrieve a cookie value.

18.  (a)  Explain the concepts of normalization and de normalization in database design.

Or

(b)  Describe the process of creating a table in SQL. What considerations must be taken into account when defining columns and constraints?

19.  (a)  Discuss the concept of managing multiple queries within a single transaction. Why is it important to manage multiple queries atomically?

Or

(b)  Describe the process of query optimization in SQL. What techniques can be used to optimize the performance of SQL queries?

5                    **C–4606**

20. (a) Describe the steps involved in consuming a web service in a client application. What tools and technologies are commonly used to connect to web services?

Or

(b) Describe the process of making an asynchronous HTTP request using JavaScript and the XMLHttpRequest object. Include an example code snippet.

_____

**C–4606**

| C–4607 | Sub. Code |
| --- | --- |
| | 82744 |

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

**Fourth Semester**

**UI Design and Development**

**HUMAN CENTERED DESIGN**

**(2023 onwards)**

Duration : 3 Hours                          Maximum : 75 Marks

**Part A**                          (10 × 1 = 10)

Answer **all** questions.

1.  Which of the following is a primary focus of emotional design?

    (a)  Functionality          (b)  Aesthetics

    (c)  Usability              (d)  Emotional connection

2.  Which emotional response is most associated with the visceral level of design?

    (a)  Delight from usability

    (b)  Aesthetic pleasure

    (c)  Sense identify

    (d)  Satisfaction from performance

3. _____ is a primary goal of interaction design.

   (a) Creating visually appealing interfaces

   (b) Enhancing user experience by improving the interaction between users and products

   (c) Reducing production costs

   (d) Ensuring compatibility with all devices

4. In the context of interaction design, what does computation primarily refer to?

   (a) The mathematical algorithms used in software

   (b) The processing power of a device

   (c) The underlying systems and processes that enable user interactions

   (d) The cost of developing interactive systems

5. _____ is the primary goal of Tangible User Interfaces (TUIs).

   (a) To create more colorful interface

   (b) To integrate physical objects with digital information

   (c) To reduce the cost of interface design

   (d) To enhance security features

6. Which of the following is considered an early example of a Tangible User Interface?

   (a) Graphical User Interface (GUI)

   (b) Computer Mouse

   (c) The Digital Desk by Wellner (1991)

   (d) Voice Enhance Interface (VUI)

**C–4607**

7. Which of the following is a key challenges in contextual application development?

   (a) Creating high-resolution graphics

   (b) Ensuring applications are responsive to varying user contexts and conditions

   (c) Reducing application size

   (d) Increasing the complexity of user interfaces

8. Which of the following best describes ubiquitous computing?

   (a) Computing that is limited to desktop environments

   (b) Computing that integrates seamlessly into, everyday life and objects

   (c) Computing that focuses only on mobile devices

   (d) Computing that requires extensive user training

9. What is the primary goal of human factor engineering?

   (a) To increase the complexity of systems

   (b) To enhance the interaction between humans and systems for improved performance and safety

   (c) To reduce the cost of production

   (d) To make systems more visually appealing

10. Which of the following is a key consideration for ensuring physical comfort in workplace design?

    (a) Aesthetic appeal    (b) Ergonomics

    (c) Cost efficiency      (d) Noise

**C–4607**

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

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

11. (a) Explain the importance of emotional design in modern development.

Or

(b) Describe the key factors that contribute designing attraction in products.

12. (a) Explain the significance of interaction design in the context of User Experience (UX).

Or

(b) Describe the role of computation in interaction design.

13. (a) Explain the concept of Tangible User Interfaces (TUIs).

Or

(b) Discuss the potential applications of TUIs in different fields.

14. (a) Explain the concept of ubiquitous computing and its implications for user experience design.

Or

(b) Discuss the importance of cultural sensitivity in creating user experiences.

4 **C–4607**

15. (a) Explain the multidisciplinary nature of human factor engineering.

Or

(b) Discuss the role of ergonomics in ensuring physical comfort.

**Part C** (5 × 8 = 40)

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

16. (a) Evaluate the potential challenges that designers might face when integrating emotional design with emerging technologies such as AI and YR.

Or

(b) Predict the future trends in emotional design. How might advancements in technology influence the way products are designed emotionally?

17. (a) Explain the importance of operations in the context of interaction design. How do operational considerations impact the usability of a product?

Or

(b) Discuss strategies that interaction designers can use to advocate for user needs in an engineering-driven organization.

18. (a) Discuss a specific framework or taxonomy used in TUIs and explain how it categorizes different types of tangible interactions.

Or

(b) Explain how metaphors are used in TUIs to create intuitive interactions. Provide examples of effective metaphors used in tangible systems.

5 **C–4607**

19. (a) Explain the role of user testing in designing products for kids. How can feedback from children be incorporated into the design process?

Or

(b) Discuss the key elements of designing an effective immersive experience. How do these elements enhance user engagement and satisfaction?

20. (a) Explain the importance of break schedules and work-rest cycles in managing workplace stress and fatigue. Provide examples of effective practices.

Or

(b) Discuss the ergonomic design solutions for maintaining thermal comfort in workplaces. How do these solutions improve overall working conditions?

_____

**C–4607**

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

**Fourth Semester**

**UI Design and Development**

**MOBILE APPLICATION DEVELOPMENT**

**(2023 onwards)**

Duration : 3 Hours                    Maximum : 75 Marks

**Part A**                    (10 × 1 = 10)

Answer **all** questions.

1.  Which of the following is NOT a principle of Object-Oriented Programming in Java?
    (a)  Encapsulation      (b)  Abstraction
    (c)  Inheritance        (d)  Compilation

2.  How is abstraction typically achieved in Java?
    (a)  Through the use of classes and objects
    (b)  Through the use of abstract classes and interfaces
    (c)  Through the use of inheritance and polymorphism
    (d)  Through the use of primitive data types

3.  Which of the following is NOT a primitive data type in Java?
    (a)  int                (b)  float
    (c)  string             (d)  char

4.  Which of the following control statements is used to exit from a loop immediately?
    (a)  continue           (b)  return
    (c)  break              (d)  exit

5. Which open-source license requires that any derivative work be released under the same license as the original?

   (a) MIT License

   (b) GPL (General Public License)

   (c) BSD License

   (d) Apache License

6. What is the Android operating system primarily based on?

   (a) Unix        (b) Linux

   (c) Windows     (d) MacOS

7. Which of the following is an example of a selection widget in Android?

   (a) Button       (b) Edit Text

   (c) Spinner      (d) Image View

8. Which type of Intent is used to launch a specific component such as an activity or service?

   (a) Explicit Intent    (b) Implicit Intent

   (c) Broadcast Intent   (d) Service Intent

9. What is the primary purpose of a Handler in Android?

   (a) To manage background tasks

   (b) To handle user input events

   (c) To communicate between threads and the main thread

   (d) To start a new activity

10. What is an App Widget in Android?

   (a) A background service

   (b) A small application view that can be embedded in other applications

   (c) A type of database

   (d) A layout element for activities

2

**Part B** (5 × 5 = 25)

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

11. (a) Explain the process of compiling a Java program from source code to bytecode.

Or

(b) Discuss the role of Integrated Development Environments (IDEs) in Java programming.

12. (a) Explain the concept of nested loops in Java.

Or

(b) Explain the concept of objects and classes in Java.

13. (a) Describe the components of an Android application.

Or

(b) Describe the Android software stack.

14. (a) Discuss the process of creating and using menus in Android.

Or

(b) Describe the different types of selection widgets available in Android.

15. (a) Describe the use of timers in Android applications.

Or

(b) Explain how score updating is managed in an Android game.

**Part C** (5 × 8 = 40)

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

16. (a) Explain the importance of development tools such as debuggers, profilers, and build tools in Java development.

Or

(b) Explain the significance of the PATH and JAVA_HOME environment variables when setting up the JDK.

3

C–4608

17. (a) Discuss the concept of garbage collection in Java. How does the garbage collector help in managing memory automatically?

Or

(b) Discuss the life cycle of a Java applet. What are the key methods involved, and how are they used?

18. (a) Explain the Android application lifecycle. How does understanding this lifecycle help developers create efficient and responsive applications?

Or

(b) Discuss the role of mobile software development kits (SDKs) in mobile app development. How do SDKs streamline the development process?

19. (a) Describe the steps involved in building a service in Android. How can inter-process communication be achieved between a service and other application components?

Or

(b) Explain how to use custom fonts in an Android application. What are the steps to include and apply a custom font to a Text View?

20. (a) Describe how video playback is implemented in Android. What classes and methods are involved in embedding and controlling video content within an application?

Or

(b) Explain how images are handled in Android applications. What are the methods for loading, displaying, and managing images efficiently?

———————

4

| C–4610 | Sub. Code |
|--------|-----------|
|        | **82751** |

## B.Sc. DEGREE EXAMINATION, APRIL 2025

### Fifth Semester

### UI Design and Development

### EMERGING TECHNOLOGIES

### (2019 onwards)

Duration : 3 Hours         Maximum : 75 Marks

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

Answer **all** questions.

1. Define problem formulation in artificial intelligence.

2. Mention various types of AI problems.

3. What do you mean by search algorithms?

4. Define predicate logic.

5. Mention about Birds-eye-view perception.

6. What do you mean by virtual reality?

7. Classify augmented reality based on sensor.

8. Define image acquisition.

9. Define the term networking in IoT .

10. Mention the importance of IoT in sensing.

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

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

11. (a) Pen down in detail about characteristics of problems.

Or

(b) Elaborate on problem solving methods.

12. (a) Discuss in detail about production based system.

Or

(b) Explain in detail about forward chaining.

13. (a) Explain in detail about Pitch Yaw and Roll.

Or

(b) Pen down in detail about homogeneous transformations.

14. (a) Explain in detail about image acquisition.

Or

(b) Discuss in detail about feature extraction.

15. (a) Pen down in detail about machine-to-machine communication.

Or

(b) Explain in detail about communication protocols.

2 **C–4610**

**Part C** $(3 \times 10 = 30)$

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

16. (a) Explain in detail about Heuristic functions and Hill climbing using Artificial Intelligence.

Or

(b) Brief about Machine learning and Adaptive learning.

17. (a) Explain in detail about DFS and BFS algorithms in AI.

Or

(b) Discuss in detail about Canonical View Transform.

18. (a) Distinguish between SIFT and SURF.

Or

(b) Explain in detail about data handling and analytics.

———————

3 **C–4610**

## B.Sc. DEGREE EXAMINATION, APRIL 2025

### Fifth Semester

### UI Design and Development

### SOFTWARE QUALITY ASSURANCE

### (2019 onwards)

Duration : 3 Hours                     Maximum : 75 Marks

**Part A**                     (10 × 2 = 20)

Answer **all** questions.

1. What is quality assurance?

2. What are quality models?

3. How to measure the quality?

4. Define quality tree.

5. Define ISO 9000.

6. What is reliability?

7. What is AQC?

8. What are test phases?

9. What is playback testing?

10. How to prepare test report?

**Part B** (5 × 5 = 25)

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

11. (a) Describe the concept of quality.

Or

(b) Explain the quality models.

12. (a) Explain the principles of measurement technique.

Or

(b) Discuss the quality prompt.

13. (a) Explain the quality control for software.

Or

(b) Describe the time management.

14. (a) Explain the guidelines of software testing.

Or

(b) Explain the Ad-Hoc testing.

15. (a) Discuss the test plan creation.

Or

(b) Discuss the qualitative research.

2 **C–4611**

**Part C**                                    ($3 \times 10 = 30$)

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

16.  (a)  Explain in detail quality criteria for software improvement.

         Or

     (b)  Explain the selection of quality goals and it measures.

17.  (a)  Discuss in detail the elements of quality.

         Or

     (b)  Explain the importance of various software testing.

18.  (a)  Explain the various types of design testing approaches.

         Or

     (b)  Explain the development of usability testing for software.

_____

**C–4611**