S–5823

Sub. Code
23BCE1C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science

PROGRAMMING IN C

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define token. Give example.

2. What is type conversion in expressions? Give example.

3. How will you initialize arrays?

4. What is the use of '*continue*' statement?

5. What is the use of '*gets*' and '*puts*' function?

6. Differentiate between array and pointer.

7. What you mean by pointer increments and scale factors. Give examples.

8. How will you access the member of the structure?

9. What are compiler control directives?

10. Write a C program to open a text file.

Part B (5 × 5 = 25)

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

11. (a) How will you define symbolic constants? Give example.

Or

(b) Explain the basic structure of C program.

12. (a) Briefly explain about formatted input and output statements.

Or

(b) Explain about '*for*' loop with suitable example.

13. (a) What is recursion? Write a recursive C program to find the factorial of given N value.

Or

(b) Write short note on : Multi-dimensional Arrays.

14. (a) Define Structure. Explain the concept of array of structures. Give example.

Or

(b) Write a C program to check the given string is palindrome or not.

15. (a) Write short note on: Error handling during I/O operations.

Or

(b) How will you declare and initialize pointer variables? Explain.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What are the data types supported by C? Explain.

17. Describe the nested 'nested *if*' structure with suitable example.

18. Write a C program to perform multiplication of two given matrices A and B of size it $n \times n$.

19. Write a C program to accept and display the date of birth using 'Structure'.

20. How will you access pointer as function arguments? Explain with example.

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S–5824

Sub. Code
23BCEA1

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Science

Allied — DIGITAL LOGIC FUNDAMENTALS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Radix in Number System?

2. Convert 29 to Excess-3 Code.

3. Write the basic properties of Boolean algebra.

4. What is sum of products?

5. What is Encoder in Combinational Logic?

6. What is Parity Bit?

7. What is meant by Sequential Logic?

8. Mention the usage of Registers.

9. What is meant by Counters?

10. Compare Dynamic and Static RAM.

Part B (5 × 5 = 25)

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

11. (a) Write a short note on Gray code with an example.

Or

(b) Convert the following :

(i) $(1101110)_2 = (?)_8$

(ii) $(234980)_{10} = (?)_{16}$.

12. (a) Prove the Distributive laws with the help of truth table.

Or

(b) Simplify using Karnaugh's map. F (A, B, C, D) = Σm (0,1, 2,4, 5, 7, 8, 10, 11, 13, 14).

13. (a) What is decoder? Draw 1 of 16 decoder circuit and explain it.

Or

(b) Explain about the multiplexer with a block diagram.

14. (a) Draw the circuit of T Flip-Flops and explain briefly.

Or

(b) Write a short note about the various types of shift registers.

15. (a) Distinguish between Synchronous and Asynchronous Counters.

Or

(b) Distinguish between RAM and ROM.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about the various Universal gates with their symbols and truth table.

17. Explain the following binary arithmetic operations with an example.

    (a) Addition

    (b) Subtraction

    (c) Multiplication

    (d) Division.

18. Design a 1 of 16 decoder with a neat diagram.

19. Explain the JK Flip-Flops with a neat diagram.

20. Explain in detail about Ripple counter.

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S–5825

Sub. Code
23BCE1S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science

FUNDAMENTALS OF INFORMATION TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Differentiate data with information.

2. List any four applications of computer.

3. Mention the roles of Output devices?

4. What are the types of Terminal input units?

5. What is data retrieval systems?

6. List any four types of secondary storage disks.

7. What are the types of software?

8. Mention any four kinds of (OS) Operating System.

9. What is meant by Compiler?

10. What is meant by Time sharing in OS?

Part B (5 × 5 = 25)

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

11. (a) Explain in brief about the features of computer with its block diagram.

Or

(b) Write a short note on Generations of Computer.

12. (a) Briefly explain the vision input systems.

Or

(b) Write a short note on the usage of plotters with its types.

13. (a) Discuss the difference between RAM and ROM.

Or

(b) Explain about the features of Zip drives and Flash drives.

14. (a) Write a short note on the working methods of Operating systems.

Or

(b) Write a short note on the characteristics of High-Level Language.

15. (a) Write a Brief description on measuring the system performance.

Or

(b) Explain briefly about the Disk Operating system.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elucidate in detail about the capabilities and limitations of computer.

17. Explain in detail about the Non-Impact printers and its types.

18. Describe in detail about the various types of Read Only Memory.

19. Discuss in detail about the various types of Application software.

20. Discuss the following in detail:

    (a) Batch Processing.

    (b) Multi-Processing.

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S–5826

Sub. Code
23BCE1FC

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Computer Science

PROBLEM SOLVING TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write a note on history of computers.

2. Differentiate 4GL and 5GL.

3. Mention the features of a good algorithm.

4. List out the flowchart symbols.

5. Create a sample program for counter control loop.

6. Define Selection structures.

7. What is array? Give an example.

8. Write a note on character-based data.

9. List out the DFD symbols.

10. What is meant by variable?

Part B

$(5 \times 5 = 25)$

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

11. (a) List out the limitations of computer - Explain.

Or

(b) Write a note on high Level Language.

12. (a) Mention the advantages and disadvantages of flowcharts.

Or

(b) Give a brief note on the situation to use flowcharts with an example.

13. (a) Create a simple program using logical operator.

Or

(b) Explain nested loop with an example program.

14. (a) Briefly discuss data types.

Or

(b) Create a simple program for adding two numbers.

15. (a) How to create a sequential file? Explain.

Or

(b) Elucidate DFD.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail about Interpreter and compilers.

17. Illustrate types of errors.

18. Write a detailed note on Application of repetition structures.

19. Explain one dimensional array.

20. How to modify sequential files? Explain.

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S–5827

Sub. Code
23BCE2C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Object?

2. Compare goto and jump statement.

3. How to define member function?

4. What is bit field?

5. Compare Unary and Binary operation.

6. Write a note on abstract class.

7. What is this' pointer?

8. Discuss the features of Virtual function.

9. Define File Modes.

10. What is string attributes?

Part B (5 × 5 = 25)

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

11. (a) Describe Object Oriented Programming Language in detail.

Or

(b) Illustrate Switch Case Statement in C++.

12. (a) Demonstrate Static Member variable and functions in detail.

Or

(b) Illustrate Destructor in detail.

13. (a) How to overload unary operator in C++? Explain.

Or

(b) Demonstrate virtual base class with example.

14. (a) Describe the characteristics of arrays.

Or

(b) How to declare Pointer Variables?

15. (a) Compare Binary and ASCII Files.

Or

(b) Demonstrate exception Handling in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about function overloading with example.

17. Write a C++ program to use Constructor in detail.

18. Illustrate Single inheritance with suitable example.

19. Describe in detail about Pointer to derived class and basic class.

20. How to define templates in C++? Explain.

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S–5828

Sub. Code
23BCEA2

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Science

Allied – RESOURCE MANAGEMENT TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Operations Research, and why is it important?

2. Briefly describe the scope of Operations Research.

3. What is the Transportation Problem in Operations Research?

4. Define the North West Corner Rule in the context of solving the Transportation Problem.

5. What is a Transshipment Problem in Operations Research?

6. Define the Assignment Problem.

7. What are the principal assumptions in sequencing problems?

8. How does a Type II Sequencing Problem differ from a Type I Sequencing Problem?

9. What is PERT and what is its primary use in network scheduling?

10. Define the Critical Path Method (CPM) in project management.

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

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

11. (a) Explain the key phases involved in an Operations Research study.

Or

(b) Discuss the formulation of a Linear programming Problem (LPP) with an example.

12. (a) What are the steps involved in performing the optimality test in the Transportation Problem?

Or

(b) Discuss the advantages and limitations of using the North West Corner Rule for obtaining an initial solution to the Transportation Problem.

13. (a) Explain the key steps involved in solving the Assignment Problem using the Hungarian Method.

Or

(b) Describe the difference between a Balanced and Unbalanced Assignment Problem.

14. (a) Explain the terminology and notations used in sequencing problems.

Or

(b) Describe the approach to solving a Type 1 Sequencing Problem with n jobs through two machines.

15. (a) Discuss the common errors encountered during network construction and how to avoid them.

Or

(b) Outline the steps involved in time analysis in PERT/CPM.

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

Answer any **three** questions.

16. Explain each step involved in the graphical method of Linear Programming Problem.

17. Provide a detailed explanation of the Vogel's Approximation Method and solve a Transportation Problem using this method.

18. Provide a detailed explanation of the Transportation Problem, including its formulation, and solve an example problem.

19. Discuss the different types of Sequencing Problems (Type I to Type IV) and explain how to formulate and solve each type, providing examples for clarity.

20. Provide a detailed explanation of the Critical Path Method (CPM) including how to determine the critical path and calculate project duration. Use an example to illustrate the process.

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S–5829

Sub. Code
23BCEA3

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Science

Allied – MARKUP AND SCRIPTING LANGUAGES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Name two self-closing tags in HTML and explain their use.

2. Difference between inline and block-level tags in HTML.

3. What attribute is used to specify the source of an image in the <img>' tag?

4. Compare combo box and text area in HTML.

5. Define the term "media query" in the context of CSS.

6. What is the role of the '<link>' tag in connecting CSS to HTML?

7. How can you convert a string to a number in JavaScript? Mention few methods.

8. What is a regular expression in JavaScript, and what is it used for?

9. Give an example of a commonly used event in JavaScript.

10. How can you access and modify the source of an 'Image' object in JavaScript?

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

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

11. (a) Discuss the role of the '<a>' (anchor) tag in HTML. How can it be used to create both internal and external links? Explain the attributes associated with the '<a>' tag and how they influence link behavior.

Or

(b) Explain the use of the and tags in HTML. How do these tags contribute to the layout and styling of a webpage? Provide examples demonstrating their typical use cases.

12. (a) In HTML, forms are often used to collect user data and submit it to a server. Discuss the various methods for submitting form data, including GET and POST methods, and how they impact the handling of user data on the server side.

Or

(b) Explain the concept of form validation in HTML. How can you implement basic client-side validation using attributes like required, 'mm', 'max', and 'pattern'?

13. (a) Explain the box model in CSS and its significance in web design.

Or

(b) Describe the different CSS positioning schemes (static, relative, absolute, fixed, and sticky) and how they affect the layout of elements on a webpage. How can these positioning techniques be combined to achieve complex layouts and responsive designs?

14. (a) Strings are essential in almost every JavaScript application. Discuss the various string methods available in JavaScript, such as 'concat', 'split', 'trim', and 'indexOf'. Explain how these methods can be used to process and manipulate text data.

Or

(b) Compare and contrast client-side and server-side JavaScript in terms of their roles, advantages and limitations.

15. (a) Consider a scenario where you need to create an interactive image map on a web page. Explain how the 'Area' object is utilized in this context, including how it interacts with the 'Image' object and the 'document' object to provide a seamless user experience.

Or

(b) Describe the purpose of AJAX in the context of a dynamic web application. How does AJAX enable smoother and more responsive user interactions?

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

Answer any **three** questions.

16. Design a web page for a small business, including a header with a logo, a navigation bar, a content section with two columns (one for content, one for a sidebar), and a footer. Provide the HTML structure and corresponding CSS to style the layout. Ensure the design is responsive and describe the steps taken to achieve this.

17. Explore the role of multimedia in enhancing user engagement on websites. How can multimedia elements like GIFs, videos, and audio improve user experience, and what are the potential pitfalls to avoid? Provide examples of best practices for integrating multimedia content.

18. As a front-end developer, you are tasked with creating a responsive contact form for a company website. The form should be accessible on various devices, from desktop computers to mobile phones. It needs to be user-friendly, visually appealing, and easy to navigate. Your goal is to design a form that adapts to different screen sizes and provides a seamless experience for users.

19. Create a simple JavaScript program for a pizza ordering system. The program should prompt the user to choose the size of the pizza (small, medium, or large), select toppings (pepperoni, mushrooms, onions, etc.), and specify if they want delivery or pickup. After the user has made their selections, the program should calculate the total cost of the order and display it to the user. How would you approach implementing this pizza ordering system using JavaScript?

20. Imagine you are developing a web-based dashboard that requires real-time updates from a server. Explain the approach you would take to ensure that these updates are performed efficiently and seamlessly for the user.

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S–5830

Sub. Code
23BCEA4

U.G. DEGREE EXAMINATION, APRIL 2025

Computer Science

Allied — OPERATING SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is an Operating System?

2. Compare Process and Thread.

3. Write a note on Virtual Memory.

4. Differentiate File and Directory.

5. Define Deadlock.

6. List the goals of Linux.

7. Write a note on mkdir command.

8. How to create files in Linux?

9. Write the purpose of who command.

10. Compare fgrep and grep.

Part B

$(5 \times 5 = 25)$

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

11. (a) Illustrate system calls in detail.

Or

(b) Describe the process flow in detail.

12. (a) What are the design issues of paging system? Explain.

Or

(b) Describe MS-DOS File system.

13. (a) Discuss the Characteristics of Deadlock.

Or

(b) Illustrate Kernel Structure in detail.

14. (a) What are the commands available for files in Linux? Explain.

Or

(b) How to check disk free space? Explain.

15. (a) Discuss about batch commands in Linux.

Or

(b) Illustrate shell variables and keywords in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Illustrate the structure of Operating System.

17. Elucidate in detail about paging system with neat sketch.

18. How to detect and recover from Deadlock? Explain.

19. Illustrate the architecture of Linux System.

20. Write a detailed note on :

    (a) find

    (b) sort

    (c) cal

    (d) banner

    (e) touch

    Command with example.

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S–5831

Sub. Code
23BCE2S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How to Insert a picture from a web page?

2. What are the problems created when organizations do not have any kind of formal document management system in place?

3. How to create a New Template using an existing Template?

4. Enlist the steps to check whether your printer supports duplex printing.

5. What is the use of the VLOOKUP function?

6. List all report formats which is offered by Excel.

7. What are the four objectives of MS Access?

8. What is a record in Access?

9. Explain the method for using Notes Panel.

10. Define a back stage view.

Part B (5 × 5 = 25)

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

11. (a) Write a note on 'Find and Replace' in MS-Word?

Or

(b) Explain Microsoft Word has its own built-in help system.

12. (a) How Indents and Outdents help to set margins?

Or

(b) What is Paragraph Formatting? Write the steps to form at a paragraph?

13. (a) How we can create charts using MS Excel?

Or

(b) Briefly discuss the entering text and data in the Excel Sheet.

14. (a) How we can insert today's Date and time in MS Excel.

Or

(b) How to create a simple query in MS Access.

15. (a) Write steps to save and close a slide presentation in Power Point.

Or

(b) Write the step for creating slides using different layouts.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the Home tab from tool bars used in MS-Word.

17. What is Mail Merge? Discuss the process of mail merge.

18. Explain Format menu in MS Excel.

19. How to create a database in Access? Explain.

20. Explain Custom animation and slide transition.

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S–5832

Sub. Code
23BCE2S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Computer Science

INTRODUCTION TO HTML

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Web Browser.

2. Write a note on HTML.

3. What is big tags?

4. Describe <p> tag.

5. Illustrate Unordered list.

6. How to create hyper links?

7. Define Cell Padding.

8. What is frameset?

9. Define <input> tag in HTML.

10. What is the role of <button> tag in HTML?

Part B (5 × 5 = 25)

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

11. (a) Write the characteristics of Webpage.

Or

(b) Discuss the role of HTTP and HTTPS in web communication.

12. (a) Describe Formatting tags in HTML.

Or

(b) Illustrate body tag in HTML.

13. (a) Demonstrate Nested list with example.

Or

(b) How to create Marquee tag in HTML? Explain.

14. (a) Elucidate targeted links with example.

Or

(b) How to use Rowspan and Colspan in table? Explain.

15. (a) Describe the purpose and usage of <text area> tag with example.

Or

(b) Explain the structure of HTML form with example.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What are HTML tags? Explain different types of tags with example.

17. Describe Heading tags in HTML.

18. Write the procedure to insert images in HTML. Explain with example.

19. How to create table in HTML? Explain with example.

20. Discuss how to create a complete registration form using HTML.

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S–5833

Sub. Code
23BCE3C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

DATA STRUCTURE AND ALGORITHMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Abstract Data Type?

2. How to access elements of an array?

3. Write the Basic Terminologies of Linked Lists.

4. How to represent Doubly Linked List?

5. What are the Operations of Queue?

6. Define is Linked Stack.

7. Write a note on Graph.

8. List the Operations on Binary Tree.

9. Define Linear Search.

10. Compare Bubble and Quick Sort.

Part B (5 × 5 = 25)

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

11. (a) Discuss about Asymptotic Notation in detail.

Or

(b) What are the Operations on Arrays? Explain.

12. (a) Discuss about applications of linked list.

Or

(b) How to perform insert, delete and select operations on Circular Linked List? Explain.

13. (a) How to represent Queue using Linked List? Explain.

Or

(b) Discuss about application of Queue.

14. (a) How to create Binary Tree? Explain.

Or

(b) Describe about AVL Tree with neat sketch.

15. (a) Write the working procedure of Binary Search.

Or

(b) How to sort numbers using insertion sort? Explain.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Illustrate the Operations on data structures.

17. Discuss in detail about the basic operations of Singly Linked List.

18. Explain in detail about Array representation of Queue.

19. Write a detailed note on graph traversal algorithm.

20. Describe in detail about External Sorting.

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S–5834

Sub. Code
23BCE3S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

WEB DESIGNING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define style sheets. List the components of a CSS Style.

2. What is the syntax to link the external style sheet?

3. What is an internal CSS style?

4. What is ID selector in CSS? How it will be represented?

5. What is Dynamic HTML and how does it enhance the user experience on web pages?

6. Which method can be used to stop event propagation in event bubbling?

7. Interpret Math and Date object in JavaScript.

8. Compare GET and POST methods in JavaScript.

9. What is an object in JavaScript, and how is it different from a primitive data type?

10. How can JavaScript be used to validate a form before submission?

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

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

11. (a) Explain the concept of grouping styles in CSS and how it can improve the efficiency of your stylesheets.

Or

(b) What do you mean XML namespace? Explain in detail.

12. (a) What is CSS? Compare inline, embedded and external style sheet with example.

Or

(b) Explain the difference between margin and padding in the CSS Box Model.

13. (a) Describe a scenario where event bubbling might be useful.

Or

(b) Describe the concept of data binding and its advantages in web development.

14. (a) Write a JavaScript code to find sum of N natural numbers using user defined function.

Or

(b) Create a form for student information. Write JavaScript code to find total, average, result and grade.

15. (a) Describe the role of the window object in a web browser environment.

Or

(b) Write a JavaScript code snippet to create an object representing a car with properties make, model, and year, and display the model property in the console.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. You are designing a webpage section that showcases a product. The section should include a product name, a short description, and a price. Use HTML and CSS to create the following:

- The product name should be displayed as a heading (<h2>) and centered on the page.
- The description (<p>) should have a lighter font weight and be displayed in italics.
- The price should be displayed in bold and colored red.
- Ensure that the section has a light gray background and padding around the content.

17. Design a card component for a webpage. The card should have an image at the top, followed by a title, and then a description. The card should have a shadow effect, padding around the content, and a margin to separate it from other elements. Write the HTML and CSS to create this card component using the CSS Box Model. Ensure that you use box-sizing: border-box; and explain how each part of the CSS Box Model is applied to style the card. Include a diagram showing the content, padding, border, and margin for the card.

18. Build a dynamic web page where users can click a button to reveal a hidden message. The message should be displayed without reloading-the page. Write JavaScript code that adds an event listener to a button. When the button is clicked, the code should display a hidden message in a designated area on the page.

19. Develop an interactive web dashboard that dynamically updates to display real-time data from a remote server. The dashboard uses Dynamic HTML (DHTML) to update various sections of the page, such as charts and statistics, based on user interactions without requiring a page refresh. Additionally, the dashboard needs to fetch this data from a remote component using Distributed Component Object Model (DCOM), which handles communication between the web application and the remote server. Describe how you would use DHTML to achieve dynamic updates on the web page and explain how DCOM facilitates the integration of remote data into the dashboard. Provide a conceptual overview of the JavaScript code for updating content and outline the role of DCOM in accessing the remote data.

20. (a) Describe the role of the DOM in enabling interactivity on web pages.

    (b) Write a JavaScript code snippet that adds an event listener to a button with ID 'ubmitBtn'. When clicked, the button should change the background color of a ' 'with ID 'box' to blue.

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S–5835

Sub. Code
23BCE3S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Computer Science

MULTIMEDIA SYSTEMS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out the different ways to deliver multimedia content.
2. Differentiate fonts and typefaces.
3. Write down the steps involved in planning and organizing tools for image creation.
4. What is MIDI audio and how does it differ from digital audio?
5. List down the different audio file formats used in multimedia.
6. Define the role of system sounds in a multimedia system.
7. How does computer animation differ from traditional animation?
8. Define digital video containers and state its importance.
9. Describe the intangible needs of a multimedia project.
10. Explain the role of an authoring system in multimedia production.

Part B (5 × 5 = 25)

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

11. (a) Discuss the various ways multimedia can be delivered and the advantages and disadvantages of each method.

Or

(b) Explain the role of hypermedia and hypertext in multimedia applications, providing examples of their use.

12. (a) Describe the process of creating still images for multimedia projects, including the tools and techniques used.

Or

(b) Compare and contrast digital audio and MIDI audio, highlighting their respective advantages and applications in multimedia.

13. (a) Explain the different audio file formats used in multimedia and their respective advantages and disadvantages.

Or

(b) Discuss Vaughan's Law of Multimedia Minimums and its implications for multimedia project development.

14. (a) Describe the principles of animation and how they are applied in creating effective multimedia animations.

Or

(b) Explain the process of shooting and editing video for multimedia projects, including the tools and techniques involved.

15. (a) Outline the stages of a multimedia project, from conception to completion and discuss the key activities involved in each stage.

Or

(b) Discuss the hardware and software requirements for multimedia production, including the role of authoring systems.

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

Answer any **three** questions.

16. Discuss the importance of font editing and design tools in multimedia projects. Provide examples of how these tools enhance the visual appeal and readability of multimedia content.

17. Explain the process of configuring a computer workspace for multimedia production. Discuss the tools and techniques used to optimize the workspace for creating and editing images and sound.

18. Analyze the role of multimedia system sounds in enhancing user experience. Discuss how different audio file formats can be utilized effectively in various multimedia applications.

19. Evaluate the impact of digital video containers on multimedia projects. Discuss the advantages and challenges associated with using different video containers and how they affect video quality and compatibility.

20. Examine the role of a multimedia production team. Discuss the various roles and responsibilities within the team and how effective collaboration contributes to the success of a multimedia project.

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S–5836

Sub. Code
23BCE4C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

JAVA PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Explain Static Data.

2. Define Arrays.

3. What is Abstract Class?

4. Write the syntax of Package.

5. What is Deadlock?

6. Define stream class.

7. Write the syntax of Menu and MenuItem.

8. What is Event?

9. List out the hierarchy of Containers.

10. Define JLabel.

Part B (5 × 5 = 25)

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

11. (a) Illustrate the structure of simple java program with neat sketch.

Or

(b) Discuss the concept of type conversion and type casting.

12. (a) Compare and contrast Method overloading and Method overriding.

Or

(b) Describe Interfaces in java with suitable example.

13. (a) Interpret the concept of Synchronized methods in java.

Or

(b) Differentiate between Byte and Character stream.

14. (a) Demonstrate the functionalities of AWT class hierarchy.

Or

(b) Analyze the importance of Layout managers.

15. (a) Draw the hierarchy of swing components and explain its functions.

Or

(b) How to use containers in java? Explain with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Illustrate types of operators in java with example.

17. Examine the functions of exception handling.

18. Describe File Handling with example in detail.

19. How to handle Mouse and Keyboard events in Java? Explain with example.

20. Write a detailed note on :

    (a) JFrame

    (b) JWindow

    (c) JDialog

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S–5837

Sub. Code
23BCE4S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

PHP PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is PHP and why is it important for creating dynamic Websites?
2. Differentiate between XAMPP and WAMP.
3. How can you embed PHP code within HTML? Provide a basic example.
4. What are PHP variables and how do you declare them?
5. What is a switch statement in PHP and when would you use it?
6. How do you declare and initialize an array in PHP? Provide an example.
7. What function is used to read data from a file in PHP, and how does it work?
8. How do you open a file in PHP for writing and what happens if the file does not exist?
9. What is a session in PHP and how do you start one?
10. How do you set a cookie in PHP? Provide an example.

Part B (5 × 5 = 25)

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

11. (a) Explain the installation process of XAMPP.

Or

(b) What are the main features and scope of PHP in modern web development?

12. (a) Explain the different data types available in PHP with examples.

Or

(b) Describe the usage of conditional statements (if, else if, else) in PHP with examples.

13. (a) Explain the difference between a while loop and a for loop in PHP. Provide examples.

Or

(b) Describe how arrays can be processed using loops in PHP. Provide a code example that demonstrates iterating over an array using a loop.

14. (a) Explain the process of reading data from a file line by line in PHP. Provide a code example.

Or

(b) Describe how to write data to a file in PHP. Include error handling in your explanation.

15. (a) Explain how to store and retrieve session variables in PHP with examples.

Or

(b) Describe how to create and manage cookies in PHP, including setting, retrieving and deleting cookies. Provide code examples.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail the process of creating a dynamic website using PHP, starting from the installation of XAMPP/WAMP, setting up a database, writing PHP code and testing the website. Include examples and code snippets.

17. Discuss the syntax of PHP in detail, including how to declare variables, use operators and write conditional statements. Demonstrate how to embed PHP in HTML and HTML in PHP with code examples.

18. Discuss PHP functions and arrays in detail. Explain how to define and call a function, create and modify arrays, and process them using loops. Also, discuss array functions available in PHP with examples.

19. Discuss in detail the concepts of reading and writing files in PHP. Explain how to open files for reading and writing, handle different file modes and process files efficiently. Provide examples of reading entire files, reading files line by line, and writing data to files. Include error handling in your explanation.

20. Discuss session management in PHP, including starting sessions, storing and retrieving session variables and destroying sessions. Explain how to use cookies in PHP to store user data, covering setting, retrieving and deleting cookies. Include examples for each concept and explain the difference between sessions and cookies in terms of their use cases and security implications.

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S–5838

Sub. Code
23BCE4S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Computer Science

SOFTWARE TESTING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Differentiate between testing and debugging.

2. Is complete testing possible? Justify with proper reasoning.

3. How pareto principle helps in effective software testing?

4. How the control flow graph is different from the flow chart with reference to software testing?

5. Elaborate on different ways data objects can be used in a calculation or as part of a control flow predicate.

6. Explain domain dimensionality.

7. What is grammar? List its importance in syntax testing.

8. Explain McCabe's Cyclomatic complexity.

9. List the three operators included in Boolean algebra.

10. Differentiate between dead stat and unreachable state.

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

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

11. (a) Discuss the various levels of testing and its objective.

Or

(b) Describe how third law helps in increasing awareness about the data bugs.

12. (a) Discuss how Cause Effect Graphing addresses the drawbacks of boundary value analysis and equivalence partitioning.

Or

(b) Explain the different types of testing blindness with suitable example.

13. (a) Write short note on :

(i) Static Slicing

(ii) Dynamic Slicing.

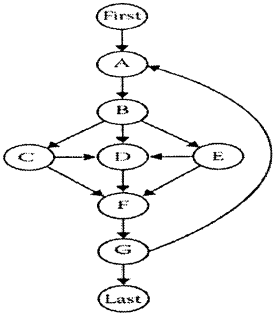
Or

(b) Discuss in detail about various domain bugs and how to test them.

14. (a) Provide an overview of different techniques adopted for design automation of syntax testing.

Or

(b) Identify a set of basis paths for the graph given below and compute the cyclomatic complexity.



15. (a) How decision tables can be used as a basis for test case design? Explain with suitable example.

Or

(b) Discuss the various ways to categorize a state-graph as good or bad.

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

Answer any **three** questions.

16. Explain in detail about the various phases of testing model using suitable diagram.

17. Discuss and differentiate between black-box and white-box testing approach with suitable example.

18. Discuss and compare the effectiveness of the various strategies for data-flow testing.

19. Describe about the steps followed in reduction procedure algorithm for converting a flow-graph into path expression with suitable example.

20. Write a detailed note on a state, state table and state graph? Explain the process of transition of states in a state graph.

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