D–1018	Sub. Code
	51711

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, DECEMBER 2025.

First Semester

PRINCIPLES OF INFORMATION TECHNOLOGY

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What is software?

2. How do you define data?

3. What does “COMPUTER” stand for?

4. What is primary memory?

5. Define spread sheets.

6. What is an operating system?

7. What are the different types of network?

8. List out the advantages of using a firewall.

9. What do you mean by digital signals?

10. What is domain name system?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Provide a brief overview of the global positioning system and its application.

Or

(b) Explain the role of information technology in education and training.

12. (a) Summarize the basic anatomy of a computer system.

Or

(b) List out and describe the key applications of computers in various fields.

13. (a) Write a short note on communication software and its significance.

Or

(b) Briefly explain the primary functions of an operating system.

14. (a) Describe different types of computer networks with examples.

Or

(b) Provide a brief explanation of network topologies and their importance.

15. (a) Explain the concept of world wide web and its key features.

Or

(b) Give a brief overview of Usenet newsgroups and their purpose.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the impact of information technology in the fields of science, engineering and mathematics with relevant examples.

17. Provide a detailed overview of the history of computers.

18. Discuss the following types of software with their functions and applications (a) database software (b) system software.

19. Explain the significance and working of the following communication tools, (a) Email communication (b) Web browser.

20. Describe the domain name system, its structure and its role in internet functionality.

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D–1019

Sub. Code
51712/22412

DISTANCE EDUCATION

COMMON FOR DIPLOMA IN COMPUTER APPLICATIONS AND CERTIFICATE PROGRAMME IN WEB DESIGNING EXAMINATION, DECEMBER 2025.

First Semester

OPEN SOURCE SOFTWARE

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is open source software?
2. Give two examples of open source operating systems.
3. Define kernel in Linux.
4. What is process cloning in Linux?
5. Write the command to start the MySQL monitor.
6. Mention any two functions used to work with data in MySQL.
7. Define metadata in the context of MySQL.
8. How do you declare a variable in PHP?
9. Write the syntax to open a file in PHP.
10. State any one way to handle form validation errors in PHP.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss the role of open source software in education and research.

Or

(b) Explain the basic principles that define open source software.

12. (a) Distinguish between Kernel mode and user mode in Linux with examples.

Or

(b) Explain personalities in Linux and their relevance to compatibility.

13. (a) Write a query using string functions like UPPER( ), LOWER( ) and CONCAT( ) with sample data.

Or

(b) Demonstrate the use of ORDER BY and GROUP BY clauses in SQL with examples.

14. (a) Describe how to use AUTO_INCREMENT to simulate sequence generation in MySQL.

Or

(b) Explain with examples how MySQL can be used in web applications.

15. (a) Write a PHP program to read and write data to a text file.

Or

(b) What is LDAP? How can PHP communicate with an LDAP server?

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss in detail the advantages and disadvantages of open source software with examples.

17. Explain the process management of Linux in detail, including kernel/user mode, scheduling and signals.

18. Discuss the use of string functions in MySQL. Write queries using LENGTH( ), REPLACE( ), SUBSTRING( ) and CONCAT( ).

19. Explain the concept of summary generation in MySQL using GROUP By, HAVING and aggregate functions. Provide relevant examples with queries and expected results.

20. Discuss the process of sending and receiving emails in PHP.

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D–1020

Sub. Code
51713

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, DECEMBER 2025.

First Semester

OFFICE AUTOMATION

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define the term hyperlink.

2. How to move the position of text in Word?

3. What is macro in MS-Excel?

4. How to create a formula in MS Excel?

5. What are the advantages of using the auto fill feature in MS-Excel?

6. What is the use of inserting clip art in a worksheet?

7. What is slide show in MS-PowerPoint?

8. What is the purpose of saving a presentation as a web page?

9. What is a query in MS-Access?

10. How can you resize columns in a datasheet?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a short notes on mail merge in MS-Word.

Or

(b) Explain with the help of examples different ways in which tables can be drawn in MS-Word.

12. (a) Explain any three built-in functions in MS-Excel.

Or

(b) What is the purpose of freezing panes in MS-Excel? Explain in detail.

13. (a) Discuss on the types of charts available in Excel and the purpose of each.

Or

(b) Explain how charts can be copied from MS-Excel to a Microsoft Word document.

14. (a) Write the steps to create a PowerPoint presentation using template.

Or

(b) Explain the various properties of a text box in PowerPoint and how to modify them.

15. (a) Describe the steps to search for specific data in MS-Access table. How can the 'Find and Replace' feature enhance data management?

Or

(b) Define "Pages" and "Projects" in MS-Access and explain their uses.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the terms with reference to MS-Word

    (a) Header and footer

    (b) Page numbers.

17. Describe the steps involved in adding and managing worksheets, rows and columns in MS-Excel.

18. Describe the step-by-step process of sorting a dataset in ascending and descending order.

19. Explain the procedure to change the layout of a slide in PowerPoint with examples of different layouts.

20. Describe how to create a table in Design view in MS-Access. Include details about defining fields, setting data types and establishing primary keys.

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D–1021	Sub. Code
	51721

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, DECEMBER 2025.

Second Semester

DIGITAL LOGIC FUNDAMENTALS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define binary number system.

2. State the difference between numeric and character codes.

3. Define Boolean algebra.

4. Write the truth table of NAND gate.

5. What is a prime implicant? Explain.

6. What is a two-level circuit?

7. Define encoder. Name any one type of encoder.

8. Differentiate between half adder and full adder.

9. Define shift register.

10. Define compliment.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain how to convert a binary number to an octal number with an example.

Or

(b) Convert $(2F)_{16}$ to binary and then to decimal.

12. (a) Explain the basic logic gates with circuit diagram and truth tables.

Or

(b) Differentiate between combinational circuits and sequential circuits with examples.

13. (a) Briefly discuss about steps involved in the Quine-McCluskey method.

Or

(b) Explain the use of don't care conditions in K-map with an example.

14. (a) Draw the circuit diagram and truth table of 2-to-4 decoder and explain.

Or

(b) Compare the half subtractor and full subtractor. Draw their truth tables.

15. (a) Differentiate between the synchronous and asynchronous counters.

Or

(b) Explain the working of an SR flip-flop with a truth table.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe binary arithmetic operations (addition, subtraction, multiplications and division) with examples for each.

17. Explain SOP and POS forms with truth tables and logic gate implementations. Provide examples of both canonical and minimal forms.

18. Design a full adder circuit and explain its working with truth table, Boolean expression and logic diagram.

19. Discuss about the memory unit of a computer. Describe RAM, ROM, Cache and their functions.

20. Explain in detail about error detection codes.

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D–1022

Sub. Code
51722

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, DECEMBER 2025.

Second Semester

PROGRAMMING IN C

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define Identifiers.

2. What do you mean by symbolic constant?

3. Which function is used to read a character?

4. Give the syntax of if…else statement.

5. What are called dynamic arrays?

6. Write down the syntax for initializing string variables.

7. What do you mean by a function call?

8. Differentiate between structure and union.

9. Define pointers.

10. List out the various operations on file.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) List and explain the various data types in C.

Or

(b) Describe the C character set.

12. (a) Explain formatted I/O statements with syntax and example.

Or

(b) Explain Else if ladder with suitable example code.

13. (a) Write a C program to implement one dimensional array.

Or

(b) Explain the elements of user defined function.

14. (a) How will you define a structure and access its members? Explain with syntax and example.

Or

(b) Explain the concept of structures within structures.

15. (a) Explain the various pointer operations.

Or

(b) Explain any five file handling functions in C.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the various operators and expression in C.

17. Differentiate between while loop and do loop with a suitable program code.

18. Write a C program to add two matrices.

19. Write a C program to find the factorial of a given number using recursion.

20. Write a C program to read data from a file and print the same.

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D–1023	Sub. Code
	51723

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, DECEMBER 2025.

Second Semester

DATA STRUCTURES AND ALGORITHMS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. What are primitive data types in programming?

2. What is a data structure? Give two examples of data structures.

3. Define the term array.

4. State the complexity of binary search.

5. Define the term circular queue.

6. Define the term stack. Give some applications of stack.

7. What are the advantages of doubly linked list over singly linked list?

8. Differentiate between array and list.

9. What is the maximum number of nodes in level i of a binary tree and what is the maximum number of nodes in a binary tree of depth k?

10. Define the following terms : node, leaf node, ancestors and siblings of a node.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss various applications of data structure.

Or

(b) Explain in detail about Big O notation.

12. (a) Write a short note on the use of two-dimensional array.

Or

(b) Create a binary search tree for the following numbers, start from an empty binary search tree 45,26,10,60,70,30,40. Delete keys 10, 60 and 45 one after the another and show the tree at each stage.

13. (a) Write an algorithm for push ad pop operations on stack using linked list.

Or

(b) Discuss infix to prefix conversion algorithm using stack with an example.

14. (a) Write and explain algorithm to insert element at the beginning of singly linked list.

Or

(b) Explain how to represent doubly linked list with help of diagram and example.

15. (a) Describe the different ways to represent binary trees in memory.

Or

(b) Explain the tree traversal techniques with an example.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. What are the different methods for analyzing the efficiency of an algorithm? Explain the role of worst-case, best-case and average-case time complexities.

17. Describe in detail about linear search with an example.

18. Explain the various operations performed on the queue with suitable examples.

19. Explain the different representation of linked list with suitable example.

20. Explain how to insert and delete an element in a binary search tree and write down the code for these operations.

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