D–8016

Sub. Code
51711

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, MAY 2025.

First Semester

PRINCIPLES OF INFORMATION TECHNOLOGY

(CBCS 2020–21 Academic Year onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is an information system?

2. How would you define GPS?

3. What are the main components of a computer?

4. What are the different types of computers?

5. What do you mean by System software?

6. What are the basic functions of an operating system?

7. How do you define a computer network?

8. What is an Intranet?

9. What does URL stand for, and what is its purpose?

10. What is the role of DNS in internet communication?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain the two key components that form the foundation of information technology.

Or

(b) How is Information Technology utilized in the fields of Entertainment and Arts?

12. (a) What are the essential components of a computer and why are they crucial in IT?

Or

(b) Provide a brief overview of the different types of computer memory.

13. (a) Discuss in brief about five categories of Application software and their uses.

Or

(b) What are the main features of Word processing software? Discuss.

14. (a) Explain in brief about network and types of network with a neat structure.

Or

(b) List out the advantages of using Intranet.

15. (a) Compare and contrast Digital and Analog signals.

Or

(b) Explain in brief about various types of Modems and their functions.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain in detail about the role of Information Technology across various industries with relevant examples.

17. Describe the key characteristics of a computer and its significance in modern technology.

18. Provide a detailed discussion on Database software, including its types, functions and applications.

19. Explain in detail about the concept of Firewalls with a well-structured diagram and discuss their types.

20. Define URL. Describe its structure, components and significance.

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D–8017

Sub. Code
51712/22412

DISTANCE EDUCATION

COMMON FOR DIPLOMA IN COMPUTER APPLICATIONS AND CERTIFICATE PROGRAMMING IN WEB DESIGNING EXAMINATION, MAY 2025.

First Semester

OPEN SOURCE SOFTWARE

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Write the need for open sources solutions in the software industry.

2. List two advantages of using open source software.

3. Define Linux and its significance in the realm of operating systems.

4. What is context process of Linux?

5. How do you start and terminate a MySQL session?

6. What is the purpose of SQL programs in MySQL?

7. What is the purpose of sorting query results in MySQL?

8. Write about MYSQL sequences and their use.

9. Name three data types supported by PHP.

10. Explain the significance of operators in PHP.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain how open source software promotes transparency and security.

Or

(b) Discuss the application of open source software in the field of education or government services.

12. (a) Explain the advanced concepts in Linux, such as personalities, cloning and signals.

Or

(b) Discuss the significance of the Linux kernel and its role in the operating system.

13. (a) Explain how to write your own SQL programs in MySQL, including basic syntax and commands.

Or

(b) Describe the technology used in MySQL for database management.

14. (a) Explain the process of generating a summary in MySQL, including the use of aggregate functions.

Or

(b) Describe how metadata is used in MySQL and provide examples of metadata queries.

15. (a) Explain the concept of functions in PHP and how they are defined and called.

Or

(b) Discuss the fundamentals of Object-Oriented Programming (OOP) in PHP, including classes, objects and inheritance.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Discuss in detail the advantages and disadvantages of using open source software compared to proprietary solutions.

17. Explain the role of the Linux community in the development and evolution of the operating system, including the contribution process and governance.

18. Describe the process of advanced query optimization techniques in MySQL, including indexing and query caching.

19. Explain the significance of sorting and indexing for optimizing query performance in MySQL, and discuss strategies for efficient sorting.

20. Discuss the integration of PHP with SQL databases and LDAP for user authentication and directory services, respectively.

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D–8018	Sub. Code
	51713

DISTANCE EDUCATION

DIPLOMA IN COMPUTER AND APPLICATIONS
EXAMINATION, MAY 2025.

First Semester

OFFICE AUTOMATION

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. How you will inert a text box in your document?

2. How to set the page break in MS Word?

3. How will you merge two cells in MS Excel?

4. Differentiate between work book and work sheet in MS-Excel.

5. What is sorting? How can you sort a cell range in MS-Excel?

6. What are the salient features of MS-Access?

7. How to change the background of slides?

8. What is master template?

9. What are the uses of Database?

10. What is primary key and what is its use in MS Access?

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain about the formatting of documents in MS-Word.

Or

(b) Describe the procedure to create a webpage using MS-Word.

12. (a) Explain the term 'Macro'.

Or

(b) What is auto fill in MS Excel? Explain any three built-in functions in MS Excel.

13. (a) How to copy a chart from MS-Excel to MS-Word? Explain.

Or

(b) Explain the data types available in MS Access table.

14. (a) Discuss briefly about adding audio and video in PowerPoint presentation.

Or

(b) Write short notes on Color scheme and Background in PowerPoint.

15. (a) How do you create a query using the query design view in MS-Access? Explain.

Or

(b) Explain the procedure for creating a form in design view in MS-Access.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Define mail merge. Explain the stages involved in performing mail merge.

17. Explain the details of formula and functions in MS-Excel.

18. Explain various form controls in MS-Access.

19. In relation to PowerPoint explain about the following :

    (a) Adding slides

    (b) Deleting a slide

    (c) Changing slide layout.

20. How do you import and export a report in MS-Access? Explain in detail.

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D–8019	Sub. Code
	51721

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, MAY 2025.

Second Semester

DIGITAL LOGIC FUNDAMENTALS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Convert $(747)_{10}$ to Octal and Hexadecimal.

2. What are called Excess 3 codes?

3. Define the dual of any statement S in a Boolean algebra B.

4. State Demorgan's theorem.

5. Give an example for simplification using sum of products.

6. What is the use of Don't care condition in K-Map?

7. What is the need for a counter in digital computer?

8. What is the function of Multiplexer?

9. Write a note on Shift registers.

10. Give examples for fixed point representations.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Discuss the use of complements in Number system.

Or

(b) Explain about Numeric codes and character codes.

12. (a) State and prove Demorgan's theorem.

Or

(b) Illustrate three variable Karnaugh map simplification with suitable example.

13. (a) Draw the logic and block diagram of a full adder and explain the operation by means of a truth table.

Or

(b) Explain about binary counters.

14. (a) Draw the block diagram of a 4-to-1-line multiplexer and explain the operation by means of a function table.

Or

(b) Explain the principles of master slave flip flop using logic circuit.

15. (a) Explain about various data representation techniques.

Or

(b) List and explain about Binary codes.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Convert the following

(a) $(127.85)_{10} = (?)_2$

(b) $(175.165)_8 = (?)_{10}$

(c) $(101111.1101)_2 = (?)_{10}$

(d) $(3\,C\,2.12)_{16} = (?)_2$

(e) $(11101.01)_2 = (?)_8$.

17. Discuss the sum of the products and product of sums with examples.

18. Simplify the following Boolean functions to a minimum number of literals.

(a) X(X'+Y)

(b) XY + X'Z + YZ.

19. Explain how shift registers are used to perform arithmetic operations.

20. Describe the architecture of Memory unit.

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D–8020

Sub. Code
51722

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, MAY 2025.

Second Semester

PROGRAMMING IN C

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define Tokens.

2. How will you declare constants in C?

3. Give the syntax of if..else statement in C.

4. Mention the purpose of goto statement.

5. What are called dynamic arrays?

6. Give the syntax of function definition and function call.

7. Differentiate structures and union.

8. How will you access structure members?

9. Define pointers.

10. Write down the syntax for opening a file for reading, writing and appending.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Describe the character set of C.

Or

(b) Explain about various operators in C.

12. (a) Explain switch statement with syntax and example.

Or

(b) Illustrate one dimensional array with a sample code.

13. (a) Explain any five string handling functions in C.

Or

(b) Outline the elements of user defined functions.

14. (a) Explain recursive function with an example.

Or

(b) Illustrate structures within structures with suitable example.

15. (a) Explain the uses of pointers.

Or

(b) Develop a C program to open a data file, read the contents and display it in standard output device.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Outline the basic structure of a C program and explain the features of C.

17. Write a C program to find the roots of a Quadratic equation.

18. Illustrate two dimensional arrays in C with a sample code.

19. Write a C program to check whether the given string is palindrome or not.

20. Illustrate structures and functions with a pseudo code.

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D–8021	Sub. Code
	51723

DISTANCE EDUCATION

DIPLOMA IN COMPUTER APPLICATIONS
EXAMINATION, MAY 2025.

Second Semester

DATA STRUCTURES AND ALGORITHMS

(CBCS 2020 – 2021 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. What is Big O notation, and why is it important in algorithm analysis?

2. Differentiate between best-case, worst-case, and average-case time complexities.

3. Why do we need an array in data structure?

4. What is linear search?

5. How do you check the stack full and stack empty condition?

6. How a queue is represented in an array?

7. What are the limitations of doubly linked lists?

8. What is the need for the header?

9. Define the term complete binary tree.

10. Mention different types of popular hash functions.

PART B — ($5 \times 5 = 25$ marks)

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

11. (a) Explain briefly about different types of data structures.

Or

(b) What is the difference between time complexity and space complexity of an algorithm? Explain how they are computed.

12. (a) Explain the characteristics of array.

Or

(b) Write an algorithm for binary search and illustrate with suitable example.

13. (a) Explain circular queue. Write an algorithm to insert and delete an element from a circular queue.

Or

(b) Explain various implementation of a Stack.

14. (a) What are the ways to insert a node in linked list? Write an algorithm for inserting a node before a given node in a linked list.

Or

(b) Explain the operation of traversing linked list. Write the algorithm and give an example.

15. (a) Discuss in brief binary search trees with an example.

Or

(b) Construct an expression tree for the expression $(a + b * c) + ((d * e + f) * g)$. Write the results of in-order, pre-order and post-order traversals.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the steps involved in designing an algorithm and discuss the significance of algorithm design in problem-solving.

17. What do you mean by array? Describe the storage structure of array. Also explain two-dimensional array in detail.

18. Explain how infix expressions are converted to polish notation. Illustrate your answer with suitable example.

19. Write algorithms to perform the following in doubly linked list :

    (a) To insert an element in the beginning, middle and end of the list.

    (b) To delete an element from anywhere in the list.

20. Explain any two techniques to overcome hash collision.

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