S–4770

Sub. Code
23BDS1C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Data Science

PROGRAMMING IN C

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions

1. What is the use of pre-processor directive?

2. What is an assignment statement? Give the general form of an assignment statement.

3. Write a C program to find the biggest of three numbers.

4. Write a program in C to print the numbers from 4 to 9 and their squares.

5. Write the difference between user defined and library functions.

6. Write any two differences between call by value and call by reference.

7. Define: Union.

8. Write any five pre-processor directives.

9. Write the syntax of pointers.

10. Define null pointer.

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

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

11. (a) Explain the basic structure of a C program.

Or

(b) What is an Identifier? What are the rules to construct Identifier?

12. (a) Elucidate the different types of IF statement with examples.

Or

(b) Explain switch statement with an example.

13. (a) Illustrate the storage classes in detail.

Or

(b) Write a C program to generate the Fibonacci series using recursion.

14. (a) Differentiate structures and unions.

Or

(b) Give a short note on structures within structures.

15. (a) Write a short note on pointer expression.

Or

(b) How to use pointers and structures? Explain it.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the data types available in C.

17. Explain the looping statements available in C language.

18. Write a C program to merge two arrays after eliminating duplicate elements.

19. Write a C program to store information of a student mark processing using structures.

20. Write a C program to arrange the names alphabetically using pointers.

S–4771

Sub. Code
23BDS1S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Data Science

FUNDAMENTALS OF INFORMATION TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What are the functions of a computer system?

2. Write the applications of computer.

3. What is an input device?

4. Write any two real time applications for voice recognition system.

5. What is the purpose of magnetic disks?

6. Write any two differences between floppy disk and compact disk.

7. What is an assembly language?

8. Write the purpose of spread sheets.

9. What do you mean by Interpreter?

10. Define Multiprogramming.

Part B (5 × 5 = 25)

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

11. (a) Explain the evolution of a computer.

Or

(b) Discuss the characteristics of computer.

12. (a) Write a short note on plotters.

Or

(b) Discuss the types of monitors.

13. (a) Discuss the functions of magnetic tape.

Or

(b) Write a short note on optical disk.

14. (a) Explain the types of application software.

Or

(b) Write a short note on DBMS.

15. (a) What is multiprocessing? Explain it.

Or

(b) Write a short note on Time sharing.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the block diagram of computer in detail.

17. Explain the impact printers and its types.

18. Explain the data storage and its retrieval methods in detail.

19. Explain the concepts of word processing.

20. Explain the features of Linux in detail.

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S–4772

Sub. Code
23BDS1FC

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Data Science

QUANTITATIVE APTITUDE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. 125,80,45,?,5

2. The average age of 30 students is 9 yr. If the age of their teacher is included, it becomes 10 yr. the age of the teacher (in yr) is

3. 50% of a% of b is 75% of b% of c. C?

4. The cost price of an article is 40% of the selling price. The percent that the selling price is of cost price is

5. The simple interest on a sum of money is equal to the principle and the number of year is equal to the rate percent per annum. The rate percent is

6. A boy walking at a speed of 45 km/h reaches his school 10 min late, Next time he increases his speed by 15 km/h but still he is late by 5 min. Find the distance of his school from his house.

7. What is Aman's present age, if after 20 years his age will be 10 times his age 10 years back?

8. What least value should be assigned to, so that the number 451*603 is exactly divisible by 9?

9. A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?

10. Mukul bought 80 kg of rice for Rs. 1200 and sold it at a loss of as much money as he received for 20 kg rice. At what price per kg did he sell the rice?

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

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

11. (a) If the population of a town increases from 8000 to 10000 in a year, what is the percentage increase?

Or

(b) Explain the concept of least common multiple (LCM) of two or morn numbers.

12. (a) The avenge age of a group of 5 friends is 25 years. If a new fiend, aged 30, joins the group, what is the new average age?

Or

(b) A trader bought 20 pens at $5 each and sold them at $8 each. Calculate the total profit earned.

13. (a) A cyclist covers a certain distance at a speed of 12 km/h. If he increases his speed to 15 km/h, he can cover the same distance in 4 hours less. Calculate the distance covered.

Or

(b) A sum of money becomes three times in 3 years at a certain rate of compound interest. In how many years will the same sum become five times at the same rate of interest?

14. (a) How many different 4-digit numbers can be formed using the digits 0, 1, 2, 3, and 4 if repetition of digits is allowed?

Or

(b) From the top of a lighthouse, the angle of depression to a ship on the sea is 45 degrees. If the height of the lighthouse is 60 meters, find the distance between the lighthouse and the ship.

15. (a) What day of the week was January 1,2023?

Or

(b) Ms. Princess Sophie bought 200 shares of a company at $20 per share. After 1 year, she sells all the shares at $25 per share, Calculate the percentage return on her investment.

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

Answer any **three** questions.

16. A sum of money is to be divided among A, B, and C in the ratio of 3:5:7. If the total amount is $540, how much will B receive?

17. The side length of a cube is increasing at a rate of 3 cm/min. Find the rate at which the volume of the cube is changing when the side length is 4 cm.

18. In a 100-meter race. A beats B by 10 meters, If A's speed is 10 m/s, find the speed of B.

19. A person deposits \$5000 in a bank account which offers 8% simple interest per annum. Find the amount after 3 years. Also, calculate the total interest earned.

20. The table below shows the marks obtained by students in a class of 50 students in a mathematics test. Use this table to answer the following questions.

Marks Range	Number of Students
0–10	3
11–20	8
21–30	12
31–40	15
41–50	12

(a) What percentage of students scored less than 30 marks?

(b) If the passing marks are 25, how many students failed the test?

S–4773

Sub. Code
23BDSA1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Data Science

Allied – DATABASE MANAGEMENT SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions

1. List out the characteristics of database system.

2. What is an instance?

3. Differentiate between Candidate and super key.

4. Define E-R diagram.

5. What is the need for normalization?

6. Mention various DML operations.

7. What do you understand by functional dependencies?

8. How do you convert a numeric value to a string in SQL?

9. What is trigger?

10. Differentiate Shared Locks with Exclusive Locks.

Part B (5 × 5 = 25)

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

11. (a) Draw and explain three-schema architecture of DBMS.

Or

(b) What is a data model? What are the different categories of data models?

12. (a) Describe the different types of attributes that occur in the ER model.

Or

(b) Discuss the database design proceeding high level data model.

13. (a) Explain dependency preserving decomposition into 3NF scheme.

Or

(b) Explain DDL and DML commands used in SQL with suitable examples.

14. (a) Briefly describe the methods for implementing JOIN operations.

Or

(b) Compare and contrast the WHERE and HAVING clauses.

15. (a) Write a PL/SQL program to perform the basic arithmetic operations.

Or

(b) Describe the working of Shadow directory. Discuss the issues involved with implementation of shadow paging.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What is a database? Describe the advantages and disadvantages of using DBMS over file system.

17. Explain the relational operations "PROJECT" and "SELECT" with the help of an example.

18. Describe the basic constraints that can be specified in SQL as part of table creation.

19. Define Relational Algebra. Discuss traditional set operations on relations.

20. Describe the evolution of data models, from hierarchical and network models to the relational model.

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S–4775

Sub. Code
23BDS2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Second Semester

Data Science

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What is indentation? Give example.
2. Define dictionary.
3. What is function calling?
4. Distinguish between the break and continue statements.
5. Define dir( ) with suitable example.
6. What are uses of packages?
7. Define class in Python.
8. Why destructors used in python?
9. What is Assertion with example?
10. Define findall( ) method.

Part B (5 × 5 = 25)

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

11. (a) What is an operator? Describe the operators in python with example.

Or

(b) How list is used in python with suitable program?

12. (a) Discuss about the recursive function with suitable program.

Or

(b) Write a Python program to perform a function with more than one return value.

13. (a) Discuss any five built-in-modules in Python.

Or

(b) Discuss the features of packages in Python.

14. (a) What is encapsulation? How it is used Python with suitable program?

Or

(b) Define method overriding. Describe with suitable example.

15. (a) How user-defined exception is created with suitable example?

Or

(b) What is regular expression modifier? List any five special characters with their meaning.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write short notes on the following:

    (a) Import functions (b) Data types. (c) Strings (d) Tuple.

17. Explain all loops in Python with suitable example.

18. What are the six modes of file handling in Python and Write a program to create, write and read a text file.

19. What is Object oriented programming? Write program with all oop features.

20. Discuss the following with suitable example.

    (a) Exceptions with arguments. (b) The match( ) function.

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S–4776

Sub. Code
23BDS2S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Second Semester

Data Science

OPEN SOURCE SOFTWARE TECHNOLOGIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions:

1. Define-Open Source.
2. What is Linux?
3. How to rename a file in Linux.
4. Write two navigation commands in Linux.
5. What is Apache HTTP server?
6. List out common Apache uses.
7. What is MySQL?
8. What is the use “SHOW DATA BASES” command.
9. How to design a form in PHP?
10. What is action parameter?

Part B (5 × 5 = 25)

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

11. (a) Write any 4 open source softwares and discuss the characteristics of open source.

Or

(b) What are the key differences between open source and commercial source.

12. (a) What are environment variable? Write any five environment variables and their description.

Or

(b) Describe about file types and file system types.

13. (a) Discuss the key features of the Apache HTTP server.

Or

(b) How does Apache work? Discuss.

14. (a) Discuss the key features of MySQL

Or

(b) Describe the common MySQL operations and their tools.

15. (a) Describe about the data base access with PHP and MySQL involves the connecting to a MySQL data base.

Or

(b) Write any 5 string functions with suitable example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the key features of Linux kernel and it's architecture.

17. Explain the formatted input and output functions in Linux with suitable program.

18. What are the commands to start, stop and restart Apache on various operating system with example.

19. Explain the following commands with suitable example.

    (a) CREATE TABLE

    (b) INSERT

    (c) SELECT

    (d) DELETE

20. Write the general form of the following with suitable code.

    (a) Multiple Insert

    (b) Inserting data from another table

    (c) Selecting records with conditions

    (d) Update all records

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S–4777

Sub. Code
23BDS2S2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Second Semester

Data Science

INTRODUCTION TO HTML

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What is HTML and explain it?
2. Write a note on webpage.
3. What is <p> tag with example?
4. What is heading tags?
5. How do you create a hyperlink in HTML?
6. What is the difference between <b> and tags?
7. How can you make a list in HTML?
8. What does the <form> tag do in HTML?
9. How do you define a table row in HTML?
10. What is the use of the <iframe> tag?

Part B (5 × 5 = 25)

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

11. (a) List and explain any four HTML elements in detail.

Or

(b) Discuss about Web Browsers in detail

12. (a) Explain about tags for document structure.

Or

(b) Write about headings paragraph tags.

13. (a) Explain about Nesting Lists.

Or

(b) Write about Marquee, HR tags in detail.

14. (a) Write an html program to create your class TIMETABLE?

Or

(b) Differentiate between Rowspan and Colspan in HTML.

15. (a) Explain HTML forms in detail along with form elements.

Or

(b) Discuss about Targeted Links in HTML.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Recall in detail about Internet and World Wide Web.

17. Discuss about Font style elements tags in detail.

18. Describe in detail about the types of lists in HTML.

19. Discuss in detail about working and organizing tables in html?

20. Discuss briefly about Frames with an example?

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S–4780

Sub. Code
23BDS3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Data Science

DATA SCIENCE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions

1. List the stages of data science process.
2. Give the features of python.
3. List the standard data types in python.
4. What are the rules for writing an identifier?
5. What is the use of dir( ) function?
6. What is the use of str. upper( ) and str. lower( ) functions in string?
7. What are the built-in functions that are used in Tuple?
8. What is meant by directory? How and where is it useful?
9. How to open a connection to database in Python?
10. How to Performing INSERT and UPDATE Queries in Database?

Part B (5 × 5 = 25)

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

11. (a) Explain about Applications of data science.

Or

(b) Difference between business intelligence and data science.

12. (a) Illustrate interpreter and interactive mode in python.

Or

(b) Explain about input, output and import functions.

13. (a) Explain the function arguments in python.

Or

(b) Explain call by value and call by reference.

14. (a) Write a small code to illustrate try and except statements in Python.

Or

(b) Explain about file operations in python.

15. (a) Write about creating tables to database in python.

Or

(b) Explain about data visualization using matplotlib.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Discuss about data analytics life cycle.

17. Explain briefly constant, variables, expression, keywords and statements available in python.

18. Briefly explain about packages in python.

19. Discuss about object oriented programming in python.

20. Explain about GUI programming.

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S–4781	Sub. Code
	23BDS3S1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Data Science

E-COMMERCE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions

1. What is E-Commerce Framework?
2. What is Multimedia server in e commerce and Give an example.
3. Define NSFNET.
4. What are the major goals of Routing Arbiter?
5. What is electronic commerce?
6. Give the essential steps of sending a query to server using form in HTML.
7. What is Electronic Funds Transfer?
8. List out the three major risks in e-commerce payment systems.
9. Describe the information filtering.
10. Write short notes on software agent.

Part B (5 × 5 = 25)

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

11. (a) Explain E-Commerce and Media Convergence.

Or

(b) Give the discussion of supply chain management in E-Commerce.

12. (a) Explicate about Internet Governance.

Or

(b) Discuss about the four categories of internet service provider.

13. (a) Elucidate the Consumer-to-Business, Business-to-Business and Intraorganizational Transactions.

Or

(b) Discuss about categories of internet data and Secure Sockets Layer.

14. (a) Discuss about types of electronic payment system in E-commerce.

Or

(b) Depict the risks in electronic payment system.

15. (a) Explain the electronic commerce catalogs.

Or

(b) Describe the characteristics and properties of software agent.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail about Anatomy of E-commerce applications.

17. Elucidate the NSFNET architecture and components.

18. Explain the technologies on web to conduct an E-Commerce

19. Depict the digital token based e-payment system.

20. Give brief discussion of software agent.

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S–4782

Sub. Code
23BDS3S2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Data Science

ENTERPRISE RESOURCE PLANNING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions

1. What are the primary usages of ERP?
2. What is the structure of ERP?
3. Why is Information Mapping Important for ERP?
4. How does physical integration differ from logical integration in ERP?
5. What does a “marketplace dynamic” refer to?
6. What is supply chain management in the context of ERP systems?
7. What are the typical stages of the SDLC in the context of ERP systems?
8. Why is the planning stage crucial in the ERP life cycle?
9. What are future directives in ERP systems?
10. What is SAP?

Part B (5 × 5 = 25)

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

11. (a) Explain the conceptual model of ERP.

Or

(b) Discuss about the ERP Vendors.

12. (a) Explain the concepts of information mapping.

Or

(b) Give brief discussion of Logical and Physical System Integration.

13. (a) Give the overview of market and marketplace dynamics. Give an appropriate example.

Or

(b) Explain in detail about the ERP integration.

14. (a) Depict the strategies of ERP implementation.

Or

(b) Enunciate the main roles of SDLC and SSAD.

15. (a) Discuss about the critical success factors in ERP.

Or

(b) How integrate the ERP into organizational culture? Explain the strategies.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the Evolution of ERP with examples.

17. Discuss the benefits and limitation of system integration.

18. Depict the functional modules of ERP software.

19. Explain the ERP implementation Life cycle.

20. Briefly discuss about the ERP Tools with their usage.

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