S–6184

Sub. Code
23BDSIC1

B.Sc. DEGREE EXAMINATION, APRIL 2025

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 importance of keywords in C?
2. What is type conversion? Explain two types of conversion with an example.
3. What is the use of switch statement?
4. What is the use of break and goto statement?
5. Write a C program to find the factorial of a number using recursion.
6. How string is declared and initialized?
7. What is a macro?
8. Define structure.
9. Write the advantages of pointers.
10. Write a C program to swap any two variables using pointers.

Part B (5 × 5 = 25)

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

11. (a) What is Token? What are the different types of token available in C?

Or

(b) Explain the following operators in C language. (i) Relational (ii) Conditional

12. (a) Write a C program to demonstrate the use of unconditional goto statement.

Or

(b) Write a C program to find GCD of two numbers using ternary operator and for loop.

13. (a) Write a C program to arrange the numbers in ascending order.

Or

(b) What are actual parameters and formal parameters? Illustrate with an example.

14. (a) Write a macro to determine whether the given number is odd or even.

Or

(b) Write a short note on Union.

15. (a) How to pass pointers to functions? Explain it.

Or

(b) Explain the pointers and arrays with an example.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain the formatted output in detail. ~ ~

17. Write a C program to implement calculator using a switch statement.

18. Explain the categories of functions in detail.

19. Write a C program to add two complex numbers by passing structures to a function.

20. What is a pointer? How are pointers used in call-by-reference type of parameter passing?

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S–6185

Sub. Code
23BDS1S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

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. Define : Computer.

2. What are the classifications of computers?

3. What is an output device?

4. Write the purpose of scanner?

5. Define : Primary Memory.

6. Write the examples for secondary storage device.

7. What do you mean by software?

8. Define : Operating Systems.

9. What is an assembler?

10. What is the use of compiler?

Part B (5 × 5 = 25)

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

11. (a) Explain the block diagram of a computer.

Or

(b) Discuss the generations of computer.

12. (a) Explain the types of Non-impact printers.

Or

(b) Write a short note on vision input system.

13. (a) Differentiate RAM and ROM.

Or

(b) Explain EEPROM in detail.

14. (a) Explain the utility programs.

Or

(b) Write a short note on DBMS.

15. (a) Briefly explain the batch processing.

Or

(b) What is multitasking? Explain it.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the capacities and limitations of computers.

17. Describe the types of scanners.

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

19. Explain the high level languages in detail.

20. Describe the concepts of DOS.

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S–6186

Sub. Code
23BDS1FC

B.Sc. DEGREE EXAMINATION, APRIL 2025

First Semester

Data Science

QUANTITATIVE APTITUDE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Find the missing number in the following series.
   4, 18.... 100, 180, 294.

2. Complete the series 7, 26, 63, 124, 215, 342?

3. The sum of two numbers is 216 and their HFC is 27. The numbers are?

4. The product of two numbers is 12960 and their HCF is 36.

5. How many pairs of such numbers can be formed?

6. The average of 11 observations is 60. If the average of first five observations is 58 and that of the last five is 56, then the sixth observation is?

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

8. A cloth merchant claim to sell his material at cost price but uses a scale which reads 1 m for 95 cm. find his gain percentage.

9. A trade man marks his goods at 20% above the CP and gives a discount % of 10% for cash payments. What profit percentage does he make?

10. A dishonest seller uses a weight of 800 g in place of 1 kg and adds 20% impurities in sugar. What would be his profit percentage, if he claims to sell the goods at the cost price?

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

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

11. (a) A shopkeeper bought a shirt for \$30 and sold it for \$45. What is the percentage profit earned?

Or

(b) Explain the concept of prime factorization and provide an example illustrating how to find the prime factors of a given number.

12. (a) The ages of a family of four members are 45, 38, 12 and 8 years. Find the average age of the family.

Or

(b) A merchant sold 60% of his stock at a profit of 20% and the remaining at a loss of 10%. If the overall profit was \$240, find the total cost price of the stock.

13. (a) A person travels 30 km at 20 km/h, then 50 km at 40 km/h, and finally 20 km at 10 km/h. Calculate the average speed for the entire journey.

Or

(b) The simple interest on a certain sum of money for 2 years at 10% per annum is \$800. Find the compound interest on the same sum for the same period and at the same rate if the interest is compounded annually.

14. (a) A password consists of 6 characters, where each character can be a letter (A-Z) or a digit (0-9). How many different passwords are possible if repetition of characters is allowed?

Or

(b) From a point on the ground, the angle of elevation to the top of a tower is 30 degrees. If the distance from the point to the base of the tower is 20 meters, find the height of the tower.

15. (a) Determine whether the year 2100 will be a leap year or not.

Or

(b) Company X declares a dividend of \$2 per share. If Mr. Kumar owns 1000 shams of Company X, calculate the total dividend amount he receives.

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

Answer any **three** questions.

16. Determine whether 7296 is divisible by 8, 9 and 12.

17. Two cars start from the same point. One travels north at a rate of 60 km/h, and the other travels east at a rate of 80 km/h. At what rate is the distance between the cars increasing after 2 hours?

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 bill of \$8000 was drawn on 15th March 2023, payable 3 months after date. It was discounted on 5th April 2023, at 6% per annum. Find the banker's discount, the true discount and the banker's gain.

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–6187

Sub. Code
23BDSA1

U.G. DEGREE EXAMINATION, APRIL 2025

Data Science

Allied — DATABASE MANAGEMENT SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Mention the functionalities of DBA.

2. What is data redundancy?

3. Define foreign key.

4. What is an entity set?

5. What is Data Independence?

6. Mention various DDL commands.

7. What is the need of normalization?

8. How is the IN operator used to filter results in a query?

9. Define deadlock,

10. What are the advantages of having an index structure?

Part B (5 × 5 = 25)

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

11. (a) Explain the different types of database users.

Or

(b) What are the different types of database end users? Explain.

12. (a) Compare and contrast logical data independence and physical data independence.

Or

(b) Discuss the steps in relational database design using ER-to-Relational mapping.

13. (a) Write a short note on the Boyce-Codd Normal Form.

Or

(b) Briefly explain UPDATE and DELETE command.

14. (a) What is the lossless join property of decomposition? Why is it important? Explain join dependency with example.

Or

(b) Explain how the GROUP BY clause works.

15. (a) Explain while loop statement in PL/SQL with an example.

Or

(b) Discuss concurrency control and recovery in distributed databases.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the three-schema architecture in detail with the help of a diagram.

17. Discuss the basic operators of relational algebra.

18. Compare and contrast normal forms (2NF, 3NF, BCNF).

19. Describe the various types of Joins with example.

20. Illustrate the use of subqueries and correlated queries in SQL.

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S–6188

Sub. Code
23BDSA2

U.G. DEGREE EXAMINATION, APRIL 2025

Data Science

Allied – OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the opening and closing documents in Ms word.
2. What do you mean by documentation?
3. How to do character Formatting?
4. Where do we apply the reset paragraph style in word?
5. How can a workbook be made?
6. How may data in a table be explain?
7. List all four possible ways to access the elements.
8. Write the part of an access window.
9. How to make PPT form Text?
10. How would one apply and alter the theme colors?

Part B (5 × 5 = 25)

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

11. (a) How to use Opening, Moving, Around-in and closing Document with an example?

Or

(b) What is creating and saving a document in the Word with example?

12. (a) Write a Notes on used for characters formatting in computer.

Or

(b) Brief note about how to alter the text's appearance.

13. (a) Explain about CREATE and SAVE a workbook in excel sheets.

Or

(b) Briefly explain the workbook effective and its features format.

14. (a) Explain in details about forms and functions in MS-access.

Or

(b) Discuss about saving files in MS-access database with proper examples.

15. (a) Briefly discuss about adjusting slide layout in PPT with example.

Or

(b) Explain about delivering electronic presentation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly explain correcting and grammatical errors with examples.

17. Discuss in detail about quickly formatting Text and Paragraphs in, Ms-Word.

18. Explain the creating workbooks in Ms-excel With example.

19. Describe to create a NEW Data Base Ms-Access.

20. Discuss in detail about ADDING, SHADING AND TEXT background of a slide with few example.

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S–6189

Sub. Code
23BDS2C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Data Science

PYTHON PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Variable.
2. What is an Import function?
3. What is Decision Making?
4. Define Argument and its types.
5. What is Packages?
6. Define Directories.
7. What is an attribute?
8. Define data hiding.
9. What is the purpose of raising exception?
10. Define search ( ) function.

Part B (5 × 5 = 25)

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

11. (a) Illustrate the concept of List with example:

Or

(b) Write about data type conversion with example.

12. (a) Explain the nested loops with example.

Or

(b) What is Function? How function are defined with example.

13. (a) Describe about modules and built-in modules.

Or

(b) Discuss Namespaces and Scope.

14. (a) Explain the various built-in attribute methods.

Or

(b) Explain the concept of polymorphism and write a program to illustrate it.

15. (a) Discuss about handling exceptions with example.

Or

(b) Explain about repetition cases.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about operators, data types and its operations with example.

17. Describe nested loops and recursive functions with example.

18. Illustrate date and time modules with example.

19. Discuss about inheritance with program.

20. Explain the regular expression modifies and its operations with example.

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S–6190

Sub. Code
23BDS2S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Data Science

OPEN SOURCE SOFTWARE TECHNOLOGIES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is commercial software?
2. Define Kernel.
3. What is a UNIX?
4. Define rmdir and cat command.
5. Where is Apache web server?
6. What is Apache command in Linux?
7. How to give commands in MySQL?
8. How to get list of database users in MySQL?
9. What is the full form of PHP?
10. What is update records?

Part B (5 × 5 = 25)

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

11. (a) Describe the features of open source.

Or

(b) Write notes about Linux Distributions.

12. (a) What are the basic command of Linux with example.

Or

(b) Discuss the concept of UNIX files.

13. (a) Describe the Restarting Apache with example.

Or

(b) Illustrate the securing Apache.

14. (a) Illustrate how to create database command in MySQL with example.

Or

(b) Explain the concept of describe table with example.

15. (a) Explain how PHP MySQL connect to database with example.

Or

(b) Explain in detailed about PHP file system with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the features of Linux Kernel Architecture with diagram.

17. Explain the main components of UNIX with diagram.

18. Explain how to start, stop or restart Apache server with example.

19. Describe the USE command with example and How to run MySQL from command.

20. Illustrate how to insert form data into database using PHP with examples.

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S–6191

Sub. Code
23BDS2S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Second Semester

Data Science

INTRODUCTION TO HTML

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the role of web browsers in accessing information online?

2. Give an example of an HTML tag and explain its function.

3. Differentiate between and <b> tags in HTML.

4. What is the purpose of the <p> tag?

5. Define ordered and unordered lists in HTML.

6. What are the attributes commonly used with the <a> tag for creating hyperlinks?

7. How do you create a basic table structure in HTML?

8. Define cell padding in HTML tables.

9. What are targeted links in HTML?

10. List three types of form elements in HTML.

Part B

$(5 \times 5 = 25)$

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

11. (a) Define a web page and outline its basic components.

Or

(b) How does understanding HTML tags help in creating structured and formatted web documents?

12. (a) Describe the purpose of the <head> and <body> tags in an HTML document.

Or

(b) Write short notes on the <font>, <strike> and <big> tags in HTML.

13. (a) Explain the purpose of the <marquee>, <hr> and <br> tags in HTML.

Or

(b) Describe how to create a simple bulleted list in HTML.

14. (a) Describe the importance of table and cell alignment for a visually appealing layout.

Or

(b) Explain the rowspan and colspan attributes in HTML with an example.

15. (a) Define a frameset in HTML and explain its purpose.

Or

(b) How do you create a frameless layout using HTML and CSS?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the role of web browsers in accessing and navigating web content.

17. How do font style elements like <bold>, <italic>, <small>, , <big> tags contribute to text formatting in HTML?

18. Discuss the significance of proper hyperlink usage for navigation and user experience.

19. Describe the steps involved in creating a basic HTML table.

20. Explain the functionality of the <iframe> tag in HTML with an example.

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S–6192

Sub. Code
23BDSA3

U.G. DEGREE EXAMINATION, APRIL 2025

Data Science

Allied — OPERATIONS RESEARCH

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define operations research.

2. List the limitations of operations research?

3. Define objective function.

4. Write the requirements for LPP.

5. What are slack and surplus variables?

6. What is meant by simplex in LPP?

7. State the characteristics of transportation problem.

8. Why is it called the travelling salesman problem?

9. What is meant by strategy?

10. Mention the usage of Maximin principle.

Part B

$(5 \times 5 = 25)$

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

11. (a) Elucidate the scope of operations research in different areas.

Or

(b) Elaborate briefly the main phases of operations research.

12. (a) Write the procedure for forming a LPP model.

Or

(b) Briefly explain the different assumptions of linear programming.

13. (a) Explain the following terms related to LPP.

(i) feasible solution

(ii) unbounded solution

(iii) feasible region

(iv) optimal solution

(v) no solution.

Or

(b) Explain the steps involved in graphical method of solving an LPP.

14. (a) Determine the basic feasible solution to the following transportation problem using north west corner rule.

Origin/Sink	P	Q	R	S	T	Supply
X	2	11	10	3	7	4
Y	1	4	7	2	1	8
Z	3	9	4	8	12	9
Demand	3	3	4	5	6	

Or

(b) Write short notes on transportation problem and assignment problem.

15. (a) Describe the applications of theory of games.

Or

(b) Solve the following game.

$$\begin{pmatrix} 2 & 5 & 6 \\ 7 & 3 & 4 \end{pmatrix}$$

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

Answer any **three** questions.

16. Exemplify the classification of models in operations research.

17. Three items are made by a company: A, B, and C. Three raw materials are employed in manufacturing : P, Q, and R. Profit per unit is A-Rs.5, B-Rs.3, C-Rs.4 Resource requirements/unit :

Raw material / Product	P	Q	R
A	–	20	50
B	20	30	–
C	30	20	40

Maximum raw material availability :

P = 80 units, Q = 100 units, R = 150 units. Formulate an LPP.

18. Solve LPP by graphical method :

Maximize $Z = 6x_1 + 7x_2$

Subject to

$$2x_1 + 3x_2 \leq 12$$

$$2x_1 + x_2 \leq 8$$

and $x_1, x_2 \geq 0$.

19. Solve the following assignment problem shown in Table using Hungarian method. The matrix entries are processing time of each man in hours.

	I	II	III	IV	V
1	20	15	18	20	25
2	18	20	12	14	15
3	21	23	25	27	25
4	17	18	21	23	20
5	18	18	16	19	20

20. Solve the following game whose payoff matrix is given below:

$$\begin{pmatrix} 9 & 3 & 1 & 8 & 0 \\ 6 & 5 & 4 & 6 & 7 \\ 2 & 4 & 3 & 3 & 8 \\ 5 & 6 & 2 & 2 & 1 \end{pmatrix}$$

S–6193

Sub. Code
23BDSA4

B.Sc. DEGREE EXAMINATION, APRIL 2025

Data Science

Allied — INTERNET AND WEB DESIGN

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is a web browser?

2. Explain the term "URL."

3. What is the purpose of the <head> section in an HTML document?

4. What tag is used to set the title of a webpage and where is it placed?

5. What HTML tag is used to create an unordered list?

6. How can you change the type of bullet points in an unordered list?

7. What role does JavaScript play in DHTMIL?

8. How can the style attribute in HTML be used in conjunction with JavaScript in DHTMIL?

9. Define action attribute.

10. What is mean by password?

Part B (5 × 5 = 25)

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

11. (a) What are the key differences between the World Wide Web (WWW) and the Internet?

Or

(b) Explain the concept of network protocols and provide examples of important Internet protocols, including their functions.

12. (a) Explain the purpose and typical content of the <header> tag in HTMIL5. How does it differ from the <head> section?

Or

(b) Describe how the <link> tag is used in the <head> section to include external resources and the importance of these resources in web design.

13. (a) Describe in detail about cell spanning.

Or

(b) Explain about column specification.

14. (a) Discuss about frames.

Or

(b) Explain about style sheets.

15. (a) Discuss the href attribute of the <a> tag and its significance in creating hyperlinks.

Or

(b) Explain about drop down list.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the evolution of the Internet from its inception to the present day, highlighting key milestones and technological advancements.

17. Describe the role of the <img> tag in HTML and its essential attributes (such as src, alt, width and height). Provide an example of how to properly include an image in a webpage.

18. Explain how to use the type attribute in the <ol> tag to customize the numbering style of ordered lists. Provide examples of different type values (e.g., 1, A, i) and discuss their impact on the presentation of list items.

19. Discuss in detail about Element of styles.

20. Discuss the various types of input controls available in HTML forms (e.g., text, radio, checkbox, file) and describe scenarios where each type is most appropriately used.

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S–6194

Sub. Code
23BDS3C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

DATA SCIENCE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. What is Datafication?

2. What is multiline statement?

3. What are python strings?

4. What is meant by conditional If?

5. Give the features of python dictionaries

6. What is meant by module in python?

7. What are packages in Python?

8. List some few common Exception types and explain when they occur.

9. Explain how the write method works on a file.

10. What is the difference between tuples and lists in Python?

Part B (5 × 5 = 25)

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

11. (a) Explain about data science in Business.

Or

(b) Write notes on Machine Learning.

12. (a) Differentiate between mutable and immutable objects.

Or

(b) Explain about List and Tuple.

13. (a) Explain the Numpy Libraries in python.

Or

(b) Explain about Recursive Functions.

14. (a) Write about Directories in Python.

Or

(b) Explain about File Handling operations in Python.

15. (a) Write about Exception Handling in Database.

Or

(b) Explain about Transaction Control.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about Exploratory Data Analysis and data science process.

17. Explain briefly about operators in Python.

18. Briefly explain about Modules in python.

19. Discuss about object oriented programming in python.

20. Explain about (a) INSERT, (b) UPDATE, (c) DELETE and (d) READ operation in detail.

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S–6195

Sub. Code
23BDS3S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Third Semester

Data Science

E-COMMERCE

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. What is E-Commerce and Write the two popular e-Commerce Platforms?
2. What is multimedia convergence?
3. Define CNSS.
4. Write the short notes of NAP.
5. What are the three distinct classes of E-Commerce Applications?
6. Give short note on Format negotiation.
7. What is Electronic CASH?
8. List out the three major risks in e-commerce payment systems.
9. Describe the information filtering.
10. Why applet importance in e-commerce.

Part B (5 × 5 = 25)

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

11. (a) Explain Information delivery/transport and E-commerce applications.

Or

(b) Discuss about what do consumers really desire and what are they willing to expend in e-commerce.

12. (a) Describe the applications and services of internet.

Or

(b) Explicate the national independent ISPs.

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

Or

(b) Explain about the URL and HTTP.

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

Or

(b) Give the pros and cons of credit card based payment

15. (a) Elucidate the information filtering.

Or

(b) Explain the browsers and applets.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give detail discussions of Electronic commerce organization applications.

17. Depict the NSFNET architecture and components.

18. Explain the Security Concepts to conduct business on public network.

19. Discuss about EDI with detail.

20. Give brief discussion of software agent.

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S–6196

Sub. Code
23BDS3S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

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. Write the two benefits of ERP.
2. What is ERP Vendor?
3. What Challenges Are Associated with Information Mapping in ERP?
4. What are Some challenges organization faces with logical integration in ERP?
5. How do competitive factors impact marketplace dynamics?
6. How does an ERP System help in managing inventory within the supply chain?
7. Define SSAD.
8. What is involved in the ERP System selection process?
9. What are future directives in ERP systems?
10. What are some common features of ERP tools?

Part B (5 × 5 = 25)

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

11. (a) Discuss about the Evolution of ERP.

Or

(b) Explain ERP Packages and its limitations.

12. (a) List out the features and examples of Shared Enterprise database.

Or

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

13. (a) How marketplace dynamics used in ERP? Explain it.

Or

(b) Discuss about the functional modules of ERP software.

14. (a) Briefly discuss about Pre-Implementation task.

Or

(b) Detail the object oriented Architecture with example.

15. (a) Discuss about critical failure factors (CFFs) 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. Give the detailed discussion of conceptual model of ERP.

17. Discuss the benefits and limitation of system integration.

18. Discuss the key steps involved in changing an ERP system.

19. Explain the roles of vendors and employees in the implementation of an ERP.

20. Explain the benefits and challenges of integrating ERP system with E-Commerce platform.

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S–6197

Sub. Code
23BDS4C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Data Science

OBJECT ORIENTED PROGRAMMING WITH JAVA

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is Object-Oriented Programming (OOP) and how does it benefit software development?

2. Define the term “inheritance” in the context of Java. How does it facilitate code reuse?

3. What is a package in Java and why is it used?

4. What is a thread in Java and how does it differ from a process?

5. What is the purpose of the File class in Java’s I/O API?

6. How do you read data from a file using File Reader in Java?

7. What is the function of the InetAddress class in Java?

8. How can you obtain the IP address of the local host using Java?

9. What is the purpose of the JFrame class in Java Swing?

10. How do you add a button to a JPanel in Java Swing?

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

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

11. (a) Discuss about features of Java.

Or

(b) How to declare arrays in java? Explain.

12. (a) Explain the use of synchronization in Java threading.

Or

(b) How do you create and use a custom package in a Java program?

13. (a) Explain about java utilities.

Or

(b) Describe the process of reading and writing files using Buffered Reader and Buffered Writer. How do these classes enhance performance compared to standard file I/O classes?

14. (a) Describe how to handle multiple client connections on a server using Java.

Or

(b) Explain how to perform DNS lookups in Java using the Inet Address class.

15. (a) Discuss about Dialog Boxes.

Or

(b) Explain about AWT classes.

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

Answer any **three** questions.

16. Explain the data types available in java.

17. Describe the java.util.concurrent package and its significance in Java. Discuss key classes and interfaces such as ExecutorService, Future and CountDownLatch and explain how they simplify concurrent programming.

18. Discuss in detail about java hash tables.

19. Explain how Java handles network security and encryption. Discuss the use of SSL/TLS with Java's networking API, including the classes and methods involved in establishing secure connections.

20. Explain in detail about life cycle of an applet.

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Sub. Code
23BDS4S1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Data Science

ADVANCED EXCEL

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the difference between a relative and absolute reference in excel?

2. How can you use the VLOOKUP function to retrieve data from a table?

3. What is the difference between a formula and a function in Excel?

4. What is Data Validation feature in Excel?

5. What is a pivot table and what is it used for?

6. Define data consolidation with example.

7. How can you apply conditional formatting based on a cell's value?

8. What is the purpose of Excel's Goal Seek tool?

9. What is a combo chart in Excel, and when would you use it?

10. How can you change the chart type of an existing chart in Excel?

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

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

11. (a) Define functions and conditional expressions in excel.

Or

(b) Discuss about concept data from multiple sheets using VLOOKUP.

12. (a) Explain about the designing structure of a template.

Or

(b) Discuss about sorting and filtering data with example.

13. (a) Discuss about Formatting and customizing pivot tables.

Or

(b) Explain in detail. Data consolidation feature with example.

14. (a) Define formatting and explain auto formatting and conditional formatting.

Or

(b) Discuss about database and text functions in excel.

15. (a) Describe the process of creating a dynamic chart in Excel using data from a table.

Or

(b) How can you use secondary axes in a bar or line chart, and why would you implement them?

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

Answer any **three** questions.

16. Explain VLOOKUP and Nested VLOOKUP functions with example.

17. Discuss about data validation and custom validations based on formula.

18. Discuss about Data consolidation features with example.

19. Explain Conditional formatting option for rows, columns and cells.

20. Create Student table and presenting the data in Charts and graphs in Excel.

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S–6199

Sub. Code
23BDS4S2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fourth Semester

Data Science

PHP PROGRAMMING

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is PHP, and what is its primary use?
2. What are the rules for naming variables in PHP?
3. What is the difference between echo and print in PHP?
4. What is a default parameter value? Provide an example.
5. What is the main difference between indexed and associative arrays?
6. What are visibility keywords? Name them.
7. What is the difference between GET and POST methods in form submission?
8. What is the role of $_POST in handling dynamic button clicks in PHP?
9. How does normalization help in relational database design?
10. Which operator is used for error suppression in PHP?

Part B (5 × 5 = 25)

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

11. (a) How did PHP evolve to support modern web development frameworks and technologies?

Or

(b) Explain the different types of operators available in PHP with examples.

12. (a) Explain the concept of function parameters and return values in PHP with an example.

Or

(b) What are some common string manipulation functions in PHP? Explain any three with examples.

13. (a) What are arrays in PHP? Explain different types of arrays with examples.

Or

(b) What is introspection in PHP? Why is it useful?

14. (a) What is $_SERVER in PHP? List and explain any three $_SERVER variables.

Or

(b) Explain the difference between imagecolorallocate( ) and imagecolorallocatealpha( ).

15. (a) What is a relational database? Explain its key features.

Or

(b) What are some best practices for optimizing PHP code for performance?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain different ways to embed PHP code within an HTML document Provide examples for each approach.

17. Describe common string functions (strlen( ), substr( ), str_replace( ), strtolower( ) with examples.

18. Explain how to convert a variable into an array and vice versa in PHP. Provide examples using explode( ) and implode( ).

19. Discuss the structure of an HTTP request and response with examples.

20. Describe the role of prepared statements in PHP when interacting with a database. Provide an example of using prepared statements for a secure database query.

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