UG — BCA
(C – 5001)

2023

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions the following :

10×4 = 40

1. Define Internet and its services. Explain Domain Naming System (DNS).

2. What is the use of protocol in communication on the Internet ? Explain TCP/IP protocol and its services.

3. What is client side scripting language ? Explain

LM – 53/2   (Turn over)

some of the advantages and disadvantages of JavaScript.

4. Define Operator. List and explain the use of operators available in JavaScript.

5. Define Document Type Definition (DTD). Also explain its types with suitable example.

6. What is Extensible Stylesheet Language(XSL) ? Also explain the working of XSL with example.

7. What is JSP ? List out some advantages of using JSP. Explain the life cycle methods for a JSP.

8. Define Array. Explain the different types of arrays available in PHP with example.

Section – B

Answer all questions of the following :

$$3 \times 10 = 30$$

9. What is Request-Response model ?

10. Differentiate btween alert () and prompt () method of window object.

11. Define type casting in JavaScript.

12. What is XML ?

13. List any five string functions of PHP.

14. Write a JavaScript code to find the factorial of a number.

15. What is the difference between HTML and XHTML ?

16. What are the different types of variables present in PHP ?

17. How does **foreach** loop work in PHP ?

18. What is the difference between Static webpage and Dynamic webpage ?

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UG — BCA
(C – 5003)

2023

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Group – A

Answer any **four** questions of the following :

10×4 = 40

1. Describe, in detail, about the structure of Linux. What are the features of Linux operating system ?

2. Explain how piping, filters and redirection important in Linux.

3. Write and explain the syntax of all available different types of loops in shell programming of Linux. Give suitable examples to demonstrate.

LM – 55/2

(Turn over)

4. List five important meta characters available in shell programming. Write a shell script to find the factorial of a number.

5. Explain the directory structure of Linux.

6. Write notes on awk utility. Describe at least four built in variables in awk and demonstrate their use giving an example for each.

7. What are the different file systems that are compatible with Linux ? Explain the kernel support for file system.

8. Define a system call. Explain how the system call differs from that of the library functions.

Group – B

Answer **all** questions of the following :

$$3 \times 10 = 30$$

9. What is user and group in Linux ?

10. Name any three popular Linux operating systems.

11. Define vi Editor and explain its modes.

12. What is grep command ?

13. What are the applications of awk ?

14. Name three important shells that are commonly used in Linux.

15. Name any five Linux Command and explain its output.

16. Write a short note on file permissions of Linux System. Which command is used to change the permissions ?

17. What is the purpose of dot and dot dot directories in the file system ?

18. What do you mean by time sharing OS ?

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UG — BCA (E – 5005)

E.-Com.

2023

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following :

10×4 = 40

1. What do you understand by E-commerce ? Draw a logical design for a simple e-commerce website and explain it clearly.

2. Discuss, in detail, merits and demerits of e-commerce to organizations, customers and society at large.

LM – 58/2

3. What are the different types of e-commerce ? Explain how internet and the web technologies have changed the market.

4. What is the various scope of e-commerce ? List important forms of raising funds through e-commerce.

5. What are the various payment methods available to buy goods online ? Compare them. Which is the best method among them according to you and why ?

6. What is a Cyber Crime ? Write a short note on Cyber Laws.

7. What do you understand by e-commerce security? Why is important ? List various concerns of security in e-commerce.

8. What are the various ethical, social and political issues in e-commerce ? Discuss important Public Policy Issues in e-commerce.

Section – B

All questions are compulsory :   3×10 = 30

9. What are the basic rquirements of e-commerce ?

10. What is the difference between e-commerce and traditional commerce ?

11. List few Consumers Oriented E-Commerce Applications.

12. What do you mean by CRM ?

13. Define the term EDI.

14. What is Website ? What are the types of websites ?

15. Define Intellectual Property.

16. Is social media useful in e-commerce ? How ?

17. Define Cryptography.

18. Which is your favorite e-commerce website and why ?

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UG — BCA (C – 5002)

2023

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

Answer any four questions of the following :

10×4 = 40

1. Define algorithm and its characteristics. Also explain the complexities of an algorithm.

2. What is asymptotic notation ? Describe Big-Oh, Omega and Theta notation used in algorithm analysis.

3. Define search and its types. Write an algorithm for binary search.

4. Explain merge sort with an example. Also write its algorithm and time complexity.

5. Define Minimum Cost Spanning Tree (MCST). Explain Kruskal's algorithm to construct minimum cost spanning tree with suitable example.

6. Explain Greedy Algorithm Designing Techniques ? Also write its general method and applications.

7. Define Graph and its traversal techniques. Explain Depth First Search (DFS) algorithm with suitable example and its time complexity.

8. Define Binary Search Tree (BST). Write an algorithm to insert a node in BST and search a key in BST.

Group – B

Answer all questions of the following : 3×10 = 30

9. What is Pseudo Code ?

10. Define master methods for solving recurrence relations.

11. Define Worst case, Average case and Best case efficiencies.

12. What is Hash table ?

13. Analyze the time complexity of Quick sort algorithm.

14. Define Divide and Conquer algorithm designing techniques.

15. What are the different operations that can be performed on a Set ?

16. Differenttiate between Directed and Undirected graph.

17. List any three applications of Breadth First Search Algorithm.

18. Define data structrue and its types.

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UG — BCA

(C – 5004)

2023

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Sections as directed.

Section – A

Answer any **four** questions of the following :

10×4 = 40

1. The following numbers are all approximate and are correct as far as their last digits only. Find thier sum :

   139.421, 28.37, 352, 68.243, 16.372

2. Establish Bisection method for the approximate of roots of an equation.

(Turn over)

3. Find by Newton-Raphson method a root of equation $x^3 - 3x - 5 = 0$.

4. Establish Newton's formula for Forward difference.

5. Using Newton's divided difference Interpolation formula, find $f'(4)$ and $f''(4)$ from the following table :

x	f(x)
1	0
2	2
4	6
7	10
10	25

6. Evaluate : $\int_{-3}^{3} x^4 dx$ by using :

(a) Trapezoidal rule

(b) Simpson's rule or Simpson's one third rule verify your result by actual integration

7. Solve the system of linear equations by Martix inversion method :

$$x - 7y + 2z = 10$$
$$3x + 4y - z = 4$$
$$2x - y + 4z = 7$$

8. Apply Runge-Kutta fourth order method to find an approximate value of y when $x = 0.2$; given that :

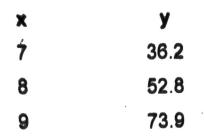$$\frac{dy}{dx} = x + y \text{ and } y = 1 \text{ when } x = 0.$$

Section – B

Answer all questions of the following : $3 \times 10 = 30$

9. Define relative and percentage errors.

10. Round off the number $\frac{27}{13.1}$ upto four significant figures.

11. Construct a diagonal difference table for the values :

x	y
3	4.8
4	8.4
5	14.5
6	23.6

x	y
7	36.2
8	52.8
9	73.9

(12) Evaluate : $\Delta \tan^{-1} x$

13. Write the formula of Simpson's $\dfrac{3}{8}$ for numerical integration of a function $y = y(x)$.

14. State Weddle's rule for numerical integration of a function $y = f(x)$.

15. State Euler's modified method for the ordinary differential equation :

$$\frac{dy}{dx} = f(x, y) \,;\, y(x_0) = y_0$$

16. Write the formula of method of False Position or Regula Falsi method.

17. Find the Inverse of the Matrix :

$$A = \begin{bmatrix} 4 & 5 \\ 6 & 8 \end{bmatrix}$$

18. Write the Lagrange's interpolation formula.

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