

**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**  
**BCA FIFTH SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023**  
**COMPUTER APPLICATIONS**  
**Design and Analysis of Algorithms**

Duration:2 Hours

Max Marks:60

**PART A**

Answer any FIVE questions:

(5×2= 10)

- 1) What do you mean by Asymptotic notations?
- 2) How does selection sort work?
- 3) What is Algorithm? Mention the criteria that algorithm has to satisfy.
- 4) Define Minimum Spanning Tree.
- 5) What is single and doubly linked list?
- 6) How does quick sort work?

**PART B**

Answer any FIVE questions :

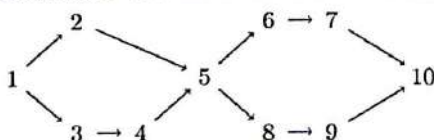
(5×6= 30)

- 7) Discuss different kinds of case-efficiencies of an algorithm.
- 8) Demonstrate how exhaustive search can be applied to Knapsack problem to find the optimal solution for the instance given below:

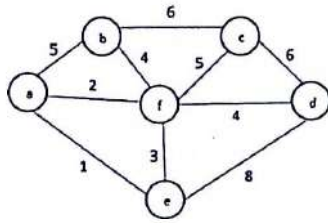
Item	Weight	Value
1	2	22
2	1	20
3	3	30
4	2	25

Capacity of  
Knapsack = 5

- 9) Determine the BFS and DFS traversal for the graph given below.



10) Solve the Minimum Spanning Tree given below using Dijkstra's algorithm.



11) List out the Steps in Mathematical Analysis of Recursive Algorithms with an example.

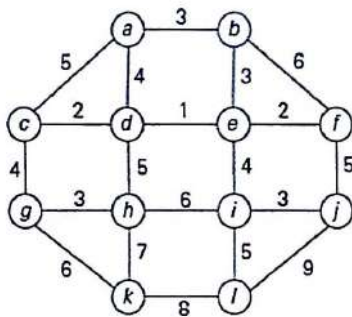
12) Apply binary search for the elements: 3, 14, 27, 31, 39, 42, 55, 70, 74, 81, 85, 93, 98 to search K=70 and write the number of cases.

**PART C**

Answer any TWO questions :

(2×10= 20)

13) Apply Kruskal's algorithm for the graph given below to find the Minimum Spanning Tree and find the shortest path.



14) Construct a Huffman Tree for the following data and encrypt COVID, AIDS, DIVA and VIDAS.

Character	C	O	V	I	D
Frequency	0.05	0.25	0.2	0.1	0.4

15) i. Write a c program to perform selection sort.

ii. A list of unsorted elements are given. Find the element 14 and return its index if it exists or indicate that it's not present using sequential search from the list given below.

42,15, 7,23, 14, 10, 32, 8

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21COADS501

Reg No : .....

**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**  
**BCA FIFTH SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023**  
**COMPUTER APPLICATIONS**  
**Cloud Computing**

**Duration:2 Hours**

**Max Marks:60**

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**PART A**

**Answer any FIVE questions:**

**(5×2= 10)**

- 1) What is Cloud Computing?
- 2) What is virtual machine monitor?
- 3) List the features of Microsoft Hyper V.
- 4) List the data platform services offered by Microsoft azure.
- 5) What are the benefits of containers?
- 6) What is Salesforce.com?

**PART B**

**Answer any FIVE questions :**

**(5×6= 30)**

- 7) Explain the advantages and disadvantages of Public Cloud.
- 8) Explain application virtualization.
- 9) Explain the fabric services supported in aneka container.
- 10) Write a note on communication and database services offered by AWS.
- 11) Explain cloud cube model with a neat diagram.
- 12) Describe the applications of cloud computing.

**PART C**

**Answer any TWO questions :**

**(2×10= 20)**

- 13) Explain how virtualization and cloud computing are interrelated.
- 14) Explain cloud service model.
- 15) Explain the Satellite Image Processing for cloud.

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21COAC502

Reg No : .....

**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**

**BCA FIFTH SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023**

**COMPUTER APPLICATIONS**

**Statistical Computing and R Programming**

**Duration:2 Hours**

**Max Marks:60**

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**Answer any THREE of the following :**

**(3×2= 06)**

1. Write about vectors in R.
2. List any two important features of a dataframe.
3. List two disadvantages of data visualization in R.
4. What are the uses of correlation?
5. Explain the concept of a probability with an example.

**Answer any FOUR of the following in not more than a page each :**

**(4×6= 24)**

6. Explain different types of classes with examples
7. Briefly explain nested functions in R.
8. Write a short note on a) Simple regression, b) Correlation matrix and c) Scatter diagram.
9. Find Mean deviation about median and its relative measure for the following data:  
11, 3, 0, 7, 2, 6, 4, 7
10. Briefly explain the scatter plot and histograms with examples? What are its importance?
11. Explain type I and type II errors with an example.

**Answer any THREE of the following in not more than two page each :**

**(3×10= 30)**

12. Explain the following functions with example.  
a) floor()      b) sqrt()      c) round()      d) is.numeric()      e) abs()
13. Explain functions for accessing the keyboard and monitor, reading and writing files.



14. Explain t-test and One sample proportion test with an example.

15. Find the arithmetic mean and median for the following data.

Wages	10	12	15	18	20	25	30
No. of workers	3	5	8	12	13	12	7

16. Briefly explain the features of a) Binomial distribution and b) Poisson distribution.

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**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**  
**BCA FIFTH SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023**  
**COMPUTER APPLICATIONS**  
**Software Engineering**

Duration:2 Hours

Max Marks:60

**PART A**

Answer any FIVE questions:

(5×2= 10)

- 1) What is professional and ethical responsibility in software engineering?
- 2) What is behavioural model?
- 3) What is alpha testing?
- 4) What is requirements validation?
- 5) What is layered architecture?
- 6) What is system context model?

**PART B**

Answer any FIVE questions :

(5×6= 30)

- 7) Explain the structure of requirements document.
- 8) What is system modeling? Explain.
- 9) What is sequence model? Explain.
- 10) Explain functional requirements.
- 11) What is the use of architectural models? Explain.
- 12) Explain the model of software testing process.

**PART C**

Answer any TWO questions :

(2×10= 20)

- 13) Explain incremental delivery.
- 14) Explain in detail pipe and filter architecture.
- 15) What is test driven development? Explain.

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21COAVC51

Reg No : .....

**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**  
**BCA FIFTH SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023**  
**COMPUTER APPLICATIONS**  
**Digital Marketing**

**Duration:2 Hours**

**Max Marks:60**

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**PART A**

**Answer any FIVE questions:**

**(5×2= 10)**

- 1) What is the role of SEO in digital marketing?
- 2) What is community building?
- 3) Differentiate between geotargeting and geofencing.
- 4) What is the importance of analytics in digital marketing?
- 5) Give any four examples for Search engines.
- 6) What is email automation?

**PART B**

**Answer any FIVE questions :**

**(5×6= 30)**

- 7) Why is online marketing preferred more than offline marketing?
- 8) Write a short note on email marketing.
- 9) What types of content are most suitable for email promotions, and why?
- 10) Explain KPI in detail?
- 11) Write a short note on a) Social media advertising      b) Social media analytics.
- 12) Explain content creation and distribution in detail.

**PART C**

**Answer any TWO questions :**

**(2×10= 20)**

- 13) Explain the tools used in campaigns.
- 14) (a) Explain mobile app marketing with examples.  
(b) Discuss any four tools used for mobile app marketing.
- 15) Explain reporting. What are the benefits of reporting in digital marketing?

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**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME**  
**B.A./B.B.A./B.C.A./B.Sc. FIRST SEMESTER DEGREE EXAMINATION**  
**NOVEMBER/DECEMBER 2023**

**COMMERCE**  
**Accounting for Everyone**

**Duration:2 Hours**

**Max Marks:60**

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**SECTION – A**

**Answer any TWO questions:**

**(15×2= 30)**

- 1) Explain the role of Accounting in various fields.
- 2) Journalise the transactions in the books of Rajesh.
  1. Rajesh started a business by investing cash Rs.5,00,000
  2. Purchased goods on credit for Rs.20,000
  3. Sold goods for cash amounting Rs.10,000
  4. Deposited cash into the bank Rs.8,000
  5. Withdrew from the bank for personal use Rs.3,000
  6. Paid rent Rs.2,000
- 3) Explain Sales Book and Sales Returns Book along with the format.
- 4) Explain the significance of secretarial audit report.

**SECTION – B**

**Answer any FOUR questions :**

**(5×4= 20)**

- 5) From the following information prepare Sales Book.
  1. Feb 2 Sold 85 kg of wheat @Rs.50 per kg, invoice no 44 Trade discount allowed @9%
  2. Feb 5 Sold 25 liters of coconut oil @Rs.160 per litre, invoice no 80 trade discount allowed at 7.5%
  3. Feb 15 Sold goods for Rs.85,000 for cash.
  4. Feb 30 Sold goods on credit Rs.95,000
- 6) Prepare a Trial Balance from the following figures.

1. Capital	4,10,000
2. Drawings	35,000



3. Purchase	20,5000
4. Sales	55,000
5. Rend Paid	28,000
6. Wages	85,500
7. Machinery	32,000
8. Commission Received	500
9. Creditors	42,000
10. Furniture	1,22,000

- 7) Explain different types of Accounts.
- 8) Explain the kinds of Cash Books.
- 9) Prepare the Balance sheet of Non- profit organization.

Particulars	Amount (Rs.)
Capital fund	4,85,000
Furniture	2,50,000
Creditors	55,000
Prepaid expenses	7,500
Outstanding salary	7,500
Excess of income over expenditure	2,47,500
Cash balance	1,15,000
Sports equipment	40,000
Utensils	60,000
Fixed deposit	2,52,500

- 10) Prepare a cash book from the following information.

Opening balance of cash	Rs.6,00,000
Paid rent	Rs.33,000
Sold goods for cash	Rs.2,10,000
Bought furniture	Rs.40,000
Drawings	Rs.10,000
Paid into the bank	Rs.10,500
Received cash from Debtors	Rs.1,00,000
Paid to Creditors	Rs.35,000
Withdrew from bank	Rs.2,000

**SECTION – C**

**Answer any FIVE questions :**

**(2×5= 10)**

- 11) What is an Account?
- 12) What is meant by Debit?
- 13) What is a Balance sheet?
- 14) What is meant by Drawings?
- 15) What is Listed company?
- 16) What is Articles of Association?
- 17) What is the meaning of Secretarial Report?

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