

Sr. No. 312201

August/September 2022
BCA(DS) 2nd Sem.

Introduction to Database Management System (BCA-DS-111)

Time: 3 Hours

Max. Marks: 75

Instructions:

1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART-A

- Q1 (a) Describe in brief various types of databases. (1.5)
(b) What do you mean by Logical data independence? (1.5)
(c) Differentiate between DDL and DML. (1.5)
(d) Explain primary key, super key, candidate key, foreign key concept. (1.5)
(e) Explain BCNF. (1.5)
(f) Differentiate between strong entity and weak entity? Explain with example. (1.5)
(g) Write duties of DBA. (1.5)
(h) Discuss mapping cardinalities. (1.5)
(i) Explain the concept of full functional dependency. (1.5)
(j) Differentiate between inner join and outer join. (1.5)

PART-B

- Q2 (a) Describe the architecture of database. (10)
(b) Discuss advantages of Database management system over File processing system. (5)
- Q3 (a) Construct queries for following using relational algebra: (5)
 - Find all tuples in loan relation where the branch is Delhi.
 - Find all customer names in customer relation who live in Pune.
 - Find all tuples pertaining to loans of more than 10,000 made by Delhi branch.
 - Find the names of all bank customers who have either an account or a loan or both.
 - Find all customers of the bank who have an account but not a loan.
(b) Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient, a log of various tests and examinations conducted. Construct the appropriate tables for this E-R diagram and list the tables with their attributes, primary key and foreign key. (10)
- Q4 What do you mean by Normalization? Explain all normal forms up to 5th normal form with the help of suitable examples. [15]

Q5 (a) Summarize the steps involved in converting the ER constructs to corresponding relational tables. (5)
(b) Explain insertion, deletion and update anomalies. Why are they considered bad? Illustrate with example. (10)

Q6 (a) Consider $R = \{A, B, C, D, E, F\}$, FD's $\{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$. Find the irreducible cover for this set of FD's (minimal cover). Given below are two sets of FD's for a relation R (A, B, C, D, E). Are they equivalent? $F = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$ and $G = \{A \rightarrow CD, E \rightarrow AH\}$ (10) (5)

- Q7 Answer the following: (5*3=15)
1. Discuss about integrity constraints in SQL?
 2. Illustrate different set operations in Relational algebra with an example?
 3. Illustrate Group by and Having clauses with examples?
 4. Discuss about different types of Data models?
 5. Write SQL syntax for the following with example: (i) SELECT (ii) ALTER (iii) UPDATE

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August/September 2022
BCA(DS) II SEMESTER

Professional English (BCA-DS-114)

Time : 3 Hours]

[Max. Marks : 75

Instructions :

1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.
2. Answer any four questions from Part-B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART.A

1. (a) Define Communication. (1.5)
(b) Proxemics. (1.5)
(c) Para language. (1.5)
(d) Write the process of communication. (1.5)
(e) Soft Skills. (1.5)
(f) Memorandum. (1.5)
(g) Role of listening in communication. (1.5)

- (h) Despite all her faults, _____ Complete the sentence. (1.5)
- (i) Process of Group Discussion. (1.5)
- (j) Explain the impact of social media on communication. (1.5)

PART-B

2. (a) Write one word substitution of the following :
- (i) A place where orphans are housed
 - (ii) The study of human mind
 - (iii) The art of effective speaking
 - (iv) Position for which no salary is paid
 - (v) A substance that destroys germs
- (b) Correct the sentences :
- (i) Some people disagree to this theory.
 - (ii) How much people are there in the world?
 - (iii) We stayed few days in Paris and visited the Eiffel Tower.
 - (iv) This is my neighbor who I like a lot.
 - (v) There were hundreds of people on the park. (10)
- (b) Explain in detail the 7C's of effective communication. (5)

3. (a) Give a layout of a cover page and draw a frontispiece for global warming in a city in preparation for the international summit on the same. (5)
- (b) What is feedback? Does feedback help make the communication process successful? Discuss with examples. (10)
4. Discuss the different types of reports. Mention essential elements of any two types. (15)
5. (a) Discuss the points you would bear in mind while writing a progress report. (5)
- (b) What are the major barriers to effective communication? Give ways to overcome these. (10)
6. (a) What is presentation? Explain the tips for making the presentation effective. (10)
- (b) Discuss the importance of body language while participating in an interview. (5)
7. Draft a resume and covering letter for your desired job profile in your dream company. (15)
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August/September 2022
BCA (DS) II SEMESTER

Fundamentals of Management (BCA-DS-115)

Time : 3 Hours]

[Max. Marks : 75]

Instructions :

1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.
2. Answer any four questions from Part-B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART-A

1. (a) Define Management. (1.5)
(b) What do you understand by marketing research? (1.5)
- (c) What is Manpower Planning? (1.5)
- (d) Define Administration. (1.5)
- (e) Is Management, a science or an art? (1.5)
- (f) What are the objectives of planning? (1.5)

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- (g) State the objectives of marketing. (1.5)
(h) What is the importance of inventory control? (1.5)
(i) What is production management? (1.5)
(j) Criticize advertising. (1.5)

6. (a) What is Financial Management? Discuss its objectives and functions. (10)
(b) Briefly explain the process of manpower planning. (5)

7. Define Inventory Control. Explain the various methods of inventory control in detail. (15)

PART-B

2. (a) What is Training? Explain various types of training. (10)
(b) Explain the various functions of management. (5)
3. (a) What is Personnel Management? What are the functions of personnel management? (5)
(b) Explain the meaning, importance and stages of production planning. (10)
4. Define Management. Also explain the characteristics and principles of Management. (15)
5. (a) What is Recruitment? What are the various sources of recruitment? (5)
(b) Define Capital Structure. Explain the various sources of Finance. (10)

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PART-A

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|--------|--|-------|
| Q1 (a) | What is data structure? | (1.5) |
| (b) | What do you mean by recursion? | (1.5) |
| (c) | What is a circular linked list? | (1.5) |
| (d) | What are the applications of linked list? | (1.5) |
| (e) | What are the basic operations performed on stack? | (1.5) |
| (f) | What is graph? | (1.5) |
| (g) | Differentiate between the queue and stack. | (1.5) |
| (h) | What are advantages of the linked list over array. | (1.5) |
| (i) | What is priority queue? | (1.5) |
| (j) | Differentiate between the linear and non-linear data structures. | (1.5) |

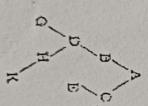
PART-B

- Q2 (a) Write an algorithm to insert and delete from an array. Explain your algorithm by suitable example. (10)

- Q2 (b) Convert following arithmetic infix expression into postfix by using stack: (5)

$$a * (b + c) + (b/d) * a + z * u$$

- Q3 (a) Write a brief note on traversing a binary tree. Find the inorder, preorder and postorder traversal of given binary tree. (8)



- Q3 (b) What is linked list? How it is represented in memory? Briefly explain header linked list. (7)

Q4	(a) What is Queue? How the queue is represented by the linked list. Explain it. (b) What is string? Write an algorithm for string pattern matching. Explain it by taking suitable example.	(9)
Q4		(7)
Q5	(a) What is minimum cost spanning tree? Write kruskal's algorithm for finding the minimum spanning tree. Explain your algorithm by taking suitable example.	(9)
Q5	(b) Explain binary search algorithm by taking suitable example.	(6)
Q6	(a) Write Dijkstra algorithm to find the shortest path. Explain your algorithm by taking suitable example. (b) What do you mean by algorithmic complexity? Explain Time complexity and space complexity in brief.	(6)
Q6		(9)
Q7	Write short note on following: (a) Multidimensional Array (b) Graph Traversal (c) Garbage Collection	(3*5)
