

Roll No.

Total No. of Questions : 07

**B.Sc. (Data Analytic) (Sem-2)
DATABASE MANAGEMENT SYSTEMS**

Subject Code : UGCA1922

M.Code : 91982

Date of Examination : 17-11-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Answers the following questions :

- a) Explain the key components of a DBMS (Database Management System).
- b) Elaborate on the role of the ER Model in the design of databases.
- c) Define Stored Programs in the context of databases.
- d) What is PL/SQL and how does it differ from standard SQL?
- e) Discuss the purpose of Cursors in SQL.
- f) Explore the concept of Multi-valued Dependencies in database design.
- g) Define First, Second and Third Normal Forms in database normalization.
- h) Explain the concept of Referential Integrity in database management.
- i) What are some common security measures used in database management?
- j) How do database recovery processes ensure data consistency and integrity?

SECTION-B

2. Describe the three-level architecture of a DBMS and the roles of each level in efficient data management.
3. Differentiate between Relational Algebra and Relational Calculus for database querying.
4. Define Boyce-Codd Normal Form (BCNF) and its importance in database design, supported by an example.
5. Outline the structure and design principles of distributed databases, discussing their advantages and challenges.
6. Explain Concurrency Management in databases and associated issues.
7. Discuss challenges and strategies for database security, including access control and encryption, with examples of security measures.



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B.Sc (Data Analytic) (Sem-2)
OBJECT ORIENTED PROGRAMMING USING C++
Subject Code : UGCA-1909
M.Code : 91983
Date of Examination : 21-11-2023

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

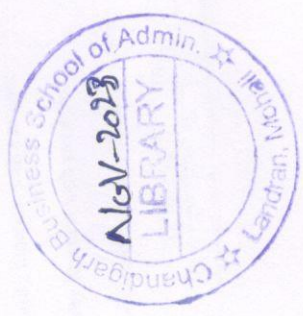
SECTION-A

1. Answer briefly :

- a) Differentiate between = and == operators with the help of an example.
- b) What is the effect of absence of break in switch case in C++ ?
- c) Explain the concept of Data Encapsulation.
- d) Explain the use of 'super' keyword.
- e) What are the input and output operators used in C++? What is the return type of main ()?
- f) What is Visibility mode? What are the different inheritance Visibility modes supported by C++?
- g) List the syntax of any two functions used to get input from the user in C++.
- h) What do you mean by Dangling Pointers?
- i) What is the purpose of defining a Destructor function?
- j) Explain the purpose of using this pointer.

SECTION-B

2. What is Object Oriented Programming? Distinguish between Procedure-Oriented Programming and Object-Oriented Programming.
3. Write a program in C++ to find the reverse of a given number.
4. What is a constructor? Can we overload constructors? Explain with the help of an example.
5. Write the different steps involved in processing a file. Write a program to write characters onto a file and to read characters from a file.
6. What is inheritance? Explain with example how to inherit a class in C++? Also write a C++ program to demonstrate use of protected data members in inheritance.
7. Explain the concept of Virtual and Pure Virtual Functions with the help of examples.



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**B.Sc. (Data Analytic) (Sem.-2)
PROBABILITY AND STATISTICS**

Subject Code : UGCA1985

M.Code : 91981

Date of Examination : 23-11-2023

Max. Marks : 60

Time : 3 Hrs.

INSTRUCTIONS TO CANDIDATES :

- SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

- Random experiment
- Independent events
- Standard Deviation
- Characteristics of a good average
- Range
- Median
- Conditional probability
- Statistics
- Coefficient of variation
- Trial and Event.

SECTION-B

2. Calculate standard deviation for the following data :

Size of item	6	7	8	9	10	11	12
Frequency	3	6	9	13	8	5	4

3. Calculate the Median from following data :

X	0	1	2	3	4	5	6	7	8
f	1	8	28	56	70	56	28	8	1

4. Explain Baye's theorem using relevant example.

5. In a survey among few people, 60% read Hindi newspaper, 40% read English newspaper and 20% read both. If a person is chosen at random and if he already reads English newspaper find the probability that he also reads Hindi newspaper.

6. Write a note on :

- Probability density function with example
- Marginal density function with example.

7. Calculate Mode of distribution from the data below :

Marks:	10-20	20-30	30-40	40-50	50-60	60-70
No. of students:	3	7	10	10	11	9



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