B2.2-R4 : INTRODUCTION TO DATABASE MANAGEMENT SYSTEM

अवधि : 03 घंटे
DURATION : 03 Hours

अधिकतम अंक : 100
MAXIMUM MARKS : 100

ओएमआर शीट सं. :
OMR Sheet No. :

रोल नं. :
Roll No. :

उत्तर-पुस्तिका सं. :
Answer Sheet No. :

परीक्षार्थी का नाम :
Name of Candidate : _____ ;

परीक्षार्थी के हस्ताक्षर :
Signature of Candidate : _____

परीक्षार्थियों के लिए निर्देश :	Instructions for Candidates :
कृपया प्रश्न-पुस्तिका, ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यानपूर्वक पढ़ें।	Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
प्रश्न-पुस्तिका अंग्रेजी भाषा में है। परीक्षार्थी उत्तर लिखने के लिए केवल अंग्रेजी भाषा का ही प्रयोग कर सकते हैं।	Question Paper is in English language. Candidate has to answer in English language only.
इस मॉड्यूल/पेपर के दो भाग हैं। भाग एक में चार प्रश्न और भाग दो में पाँच प्रश्न हैं।	There are TWO PARTS in this Module/Paper. PART ONE contains FOUR questions and PART TWO contains FIVE questions.
भाग एक ''वैकल्पिक'' प्रकार का है जिसके कुल अंक 40 है तथा भाग दो ''व्यक्तिपरक'' प्रकार का है और इसके कुल अंक 60 है।	PART ONE is Objective type and carries 40 Marks. PART TWO is Subjective type and carries 60 Marks.
भाग एक के उत्तर, इस प्रश्न-पत्र के साथ दी गई ओएमआर उत्तर-पुस्तिका पर, उसमें दिये गए अनुदेशों के अनुसार ही दिये जाने हैं। भाग दो की उत्तर-पुस्तिका में भाग एक के उत्तर नहीं दिये जाने चाहिए।	PART ONE is to be answered in the OMR ANSWER SHEET only, supplied with the question paper, as per the instructions contained therein. PART ONE is NOT to be answered in the answer book for PART TWO.
भाग एक के लिए अधिकतम समय सीमा एक घण्टा निर्धारित की गई है। भाग दो की उत्तर-पुस्तिका, भाग एक की उत्तर-पुस्तिका जमा कराने के पश्चात् दी जाएगी। तथापि, निर्धारित एक घंटे से पहले भाग एक पूरा करने वाले परीक्षार्थी भाग एक की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, भाग दो की उत्तर-पुस्तिका ले सकते हैं।	Maximum time allotted for PART ONE is ONE HOUR. Answer book for PART TWO will be supplied at the table when the Answer Sheet for PART ONE is returned. However, Candidates who complete PART ONE earlier than one hour, can collect the answer book for PART TWO immediately after handing over the Answer Sheet for PART ONE to the Invigilator.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा।	**Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/ Paper.**
प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार यह जाँच कर सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer the questions, the candidate should ensure that the Question Booklet is complete in all respect.

जब तक आपसे कहा न जाए, तब तक प्रश्न-पुस्तिका न खोलें।
DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART ONE

(Answer ALL Questions; each question carries ONE marks)

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1x10)

1.1 For designing a normal RDBMS which of the following normal form is considered adequate ?

(A) 5NF

(B) 2NF

(C) 3NF

(D) 4NF

1.2 Which of the following is known as the process of viewing cross-tab with a fixed value of one attribute ?

(A) Dicing

(B) Slicing

(C) Both Pivoting and Dicing

(D) Pivoting

1.3 Which of the following is the best way to represent the attributes in a large db ?

(A) Relational-and

(B) Dot representation

(C) Concatenation

(D) None

1.4 The user IDs can be added or removed using which of the following fixed roles ?

(A) db_setupadmin

(B) db_securityadmin

(C) db_sysadmin

(D) db_accessadmin

1.5 Which of the following is preserved in execution of transaction in isolation ?

(A) Consistency

(B) Atomicity

(C) Durability

(D) Isolation

1.6 Which is the lowest level of abstraction that describes how the data are actually stored ?

(A) User

(B) Physical

(C) View

(D) Abstract

1.7 The rows of a relation known as :

(A) Entity

(B) Degree

(C) Tuple

(D) All above

1.8 What is DBMS ?

(A) Collection of commands

(B) Collection of many program to access data

(C) Collection of interrelated data

(D) All

1.9 How is ER diagram represented ?

(A) Ellipse

(B) Rectangle

(C) Circle

(D) Triangle

1.10 Which of the following is not a SQL command ?

(A) WHERE

(B) SELECT

(C) ORDER BY

(D) DELETE

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** **(1x10)**

2.1 A Database Management System (DBMS) is Software systems used to create, maintain, and provide uncontrolled access to a database.

2.2 Record is the basic building blocks of a database.

2.3 The durability property of transaction that protects data from system failure.

2.4 The Data definition language is used for performing tasks like creating the structure of the relations, deleting relations.

2.5 In case of shutdown, before committing, flashback is done.

2.6 The Delete command is used for removing (or deleting) a relation form the database.

2.7 Relation is subset of a Cartesian product of list of domains.

2.8 Super key allows to uniquely identifying a tuple.

2.9 Data Manipulation Language (DML) is not to create information table in the Database.

2.10 Master query is a type of query that is placed within a WHERE or HAVING clause of another query.

3. **Match words and phrases in column X with the closest related meaning / word(s) / phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

	Column X		Column Y
3.1	Application programs perform the function In the DBM approach.	A.	Parent
3.2	The command is used to allocate an extent for the table in SQL.	B.	Query
3.3	Contains the smallest unit of meaningful data, so you might call it the basic building.	C.	Fields
3.4	In an Entity-Relationship Diagram Rectangles represents.	D.	Child
3.5	This is not a type of Database Management System ?	E.	Database
3.6	The alternative name for a weak entity in DBMS.	F.	Entity sets
3.7	The node pointing towards another node in a B+ tree is known as :	G.	Attributes
3.8	In one-to-many relationship the table on 'one' side is called :	H.	Processing functions
3.9	The term enables us to view data from a table based on a specific criterion.	I.	MODIFY ALLOCATES
3.10	It is defined as an organized collection of data or information for easy access, updating, and management in a computer.	J.	Sequential
		K.	External node
		L.	Records
		M.	Internal node

4. **Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

A.	Super Key	**B.**	Network	**C.**	CREATE SCHEMA
D.	Tree	**E.**	Candidate key	**F.**	Database
G.	DBMS	**H.**	Data record	**I.**	Data field
J.	Objects	**K.**	Outer Join	**L.**	Inner join
M.	With				

4.1 After groups have been established, SQL applies predicates in the _____ clause, allowing aggregate functions to be used.

4.2 _____ command is used in SQL to issue multiple CREATE TABLE, CREATE VIEW and GRANT statements in a single transaction.

4.3 The oldest DB model is _____.

4.4 _____ operations do not preserve non-matched tuples.

4.5 _____ stores data in such a way that it becomes easier to retrieve.

4.6 _____ is required to keep record of ticket booking, trains departure and arrival status, status of seats available etc.

4.7 The minimal set of super key is called _____.

4.8 In any hierarchy of data organization, the smallest entity to be processed as a single unit is called _____.

4.9 Related fields in a data base are grouped to form is called _____.

4.10 Unlike filters queries can be saved in a database as _____.

PART TWO

(Answer ANY FOUR questions)

5. (a) Illustrate the use of primary key and foreign key in relational database management system.

   (b) Explain BCNF (Boyce Codd Normal Form) with an example.

   (c) Explain different languages present in Database Management System.
   (5+5+5)

6. (a) Explain various advantages of a Database Management System.

   (b) Explain about RAID structure in detail with relevant diagrams.

   (c) Explain about write-Ahead logging protocol for recovery algorithm.
   (5+5+5)

7. (a) Define ACID. Explain about scheduling in transaction management method.

   (b) Explain about concurrency control based on time-stamp ordering.

   (c) Discuss about schema refinement in database design.
   (5+5+5)

8. (a) Explain Group By feature with HAVING Clause with example.

   (b) Write commands to create virtual tables and to show rows from virtual tables.

   (c) Discuss about different advanced Data Definition Commands.
   (5+5+5)

9. (a) What are relational set operators ? Explain with example.

   (b) What are the challenges in the database design ?

   (c) Define Database and DBMS. Explain the importance of database design.
   (5+5+5)

- o O o -

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK