SPACE FOR ROUGH WORK

PART ONE

(Answer all the questions)

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. (1×10)

1.1 When the values in one or more attributes being used as a foreign key must exist in another set of one or more attributes in another table, we have created a(n)

(A) transitive dependency
(B) insertion anomaly
(C) referential integrity constraint
(D) normal form

1.2 The _____ refers to the way data is organized in and accessible from DBMS.

(A) database hierarchy
(B) data organization
(C) data sharing
(D) data model

1.3 A table can have only one

(A) Secondary key
(B) Alternate key
(C) Unique key
(D) Primary key

1.4 In the relational models, cardinality is termed as:

(A) Number of tuples
(B) Number of attributes
(C) Number of tables
(D) Number of constraints

1.5 Architecture of the database can be viewed as

(A) two levels
(B) four levels
(C) three levels
(D) one level

1.6 A functional dependency is a relationship between or among

(A) tables
(B) rows
(C) relations
(D) attributes

1.7 Field is otherwise called as _____ of the record

(A) data item
(B) data type
(C) value
(D) variable

1.8 The way a particular application views the data from the database that the application uses is a

(A) module
(B) relational model
(C) schema
(D) sub schema

1.9 Related fields in a database are grouped to form a

(A) data file
(B) data record
(C) menu
(D) bank

1.10 _____ is, a table having more than one set of attributes that could be chosen as the key

(A) foreign key
(B) integrity key
(C) relationship
(D) candidate key

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. (1×10)

2.1 In a database, data is stored in spreadsheets which have rows and columns.

2.2 Structured Query Language (SQL) is an internationally recognized standard language that is understood by all commercial database management system products.

2.3 Prior to 1970, all data was stored in separate files, which were mostly stored on reels of magnetic tape.

2.4 Semicolon at the end of each SQL Statement will terminate the SQL statement.

2.5 A file is a collection of similar records.

2.6 A principal advantage of the database approach is that you can build a single super-database that contains all data items of interest to an organization.

2.7 The cost of developing databases is higher than the cost of developing files.

2.8 A foreign key is a field whose values identify one and only one record in the same file.

2.9 Key integrity means that the primary key for a record must not take on a value that is outside the range of legal values.

2.10 When a computer program "reads" a record from a database, it actually retrieves a group or block (or page.) of records at a time. This approach minimizes the number of actual disk accesses.

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. (1×10)

X		Y	
3.1	In an Entity Relationship diagram 'diamonds' represent	**A.**	Select
3.2	Not an aggregate function	**B.**	Unified modeling language
3.3	UML stands for	**C.**	Relationship set
3.4	Widely used algebra in DBMS	**D.**	sum
3.5	Structure of the database	**E.**	attribute
3.6	Column header is referred as	**F.**	schema
3.7	No partial dependencies	**G.**	Relational
3.8	WFF stands for	**H.**	field
3.9	Transaction completed means it is	**I.**	Second normal form
3.10	Correctness and completeness in database is known as	**J.**	Well formed formulae
		K.	Data Integrity
		L.	Committed
		M.	Well function formed

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. (1×10)

A.	Exclusive	**B.**	Project	**C.**	shared
D.	Logical	**E.**	Document	**F.**	normalization
G.	Select	**H.**	Primary key	**I.**	Field
J.	Join	**K.**	secondary	**L.**	attribute
M.	stringent				

4.1 _____ files and tables contain stored copies of historical data for easy retrieval and review without the overhead of regeneration.

4.2 A(n) _____ key is an alternate identifier for a database. Its value may identify either a single record or a subset of all records.

4.3 A(n) _____ is the smallest unit of meaningful data to be stored in a file or database.

4.4 SQL allows you to _____ two or more tables across a common field (a primary and a foreign key).

4.5 _____ is a three-step technique that places the data model into first normal form, second normal form and third normal form.

4.6 A database is in second normal form if all non-key attributes are fully functional dependent on_____.

4.7 BCNF is _____ than 3NF.

4.8 _____is used to obtain a subset of the tuples of a relation that satisfy a given condition.

4.9 Write mode is an _____ property of any transaction.

4.10 A transaction can be defined as a _____ unit of work.

PART TWO
(Answer any FOUR questions)

5. (a) Differentiate between having and where clause in SQL with proper examples.

   (b) Explain the ACID concepts in DBMS

(8+7)

6. (a) Suppose you are given the following requirements for a simple database for the National Hockey League (NHL): · the NHL has many teams, · each team has a name, a city, a coach, a captain, and a set of players, · each player belongs to only one team, · each player has a name, a position (such as left wing or goalie), a skill level, and a set of injury records, a team captain is also a player, · a game is played between two teams (referred to as host_team and guest_team) and has a date (such as May 11th, 1999) and a score (such as 4 to 2).

   Construct a clean and concise ER diagram for the NHL database using the Chen notation as in your textbook. List your assumptions and clearly indicate the cardinality mappings as well as any role indicators in your ER diagram.

   (b) What are views? Explain how views are different from tables.

(10+5)

7. (a) Consider the following relations:
   S (S#, SNAME, STATUS, CITY)
   SP (S#, P#, QTY)
   P (P#, PNAME, COLOR, WEIGHT, CITY)
   Give an expression in SQL for each of queries below:
   (i) Get supplier names for supplier who supply at least one red part
   (ii) Get supplier names for supplier who do not supply part P2.

   (b) What are the responsibilities of a DBA? If we assume that the DBA is never interested in running his or her own queries, does the DBA still need to understand query optimization ? Why ?

   (c) Explain the relevance of Data Dictionary in a Database System.

([3.5x2]+5+3)

8. (a) What are the disadvantages of file processing systems ?

   (b) What is data independence ? Explain the difference between physical and logical data independence.

   (c) What is a relationship and what are their different types ?

(5+5+5)

9. (a) How candidate key is different from super key ?

   (b) Write short notes on:
   (1) Data manipulation language
   (2) Derived attribute

(7+8)

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