Roll No. M0210031

C

CBC-1951-U

M. C. A. Third Semester

(End Semester)

Examination Dec. 2019

COMPUTER SCIENCE AND APPLICATION

Paper - CSA-CC-322

(Database Management System)

Time : Three Hours] [Maximum Marks : 60

Note :– Attempt all sections A, B and C. Follow the instructions given in each section.

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SECTION-A

(Multiple Choice Questions) 10×1=10

Note :– Attempt all questions. Choose the correct option.

1. Related fields in a database are grouped to form a :

   (a) Data file

   (b) Data record

   (c) Table

   (d) Data bank

2. An entity set which does not have enough attributes to form a primary key is :

   (a) Strong entity set

   (b) Weak entity set

   (c) Strong relationship set

   (d) Weak relationship set

3. In a relational model, relations are termed as :

   (a) Tuples

   (b) Attributes

   (c) Table

   (d) None of these

4. For each attribute of a relation, there is a set of permitted values, called the.....of that attribute :

   (a) Relation

   (b) Set

   (c) Co-domain

   (d) Domain

5. Execution of a data definition language (DDL) statement will :

   (a) Create a table

   (b) Update data dictionary

   (c) Both create a table and update data dictionary

   (d) Define the user privileges

6. The DBMS language component which can be embedded in a program is :

   (a) The data definition language (DDL)

   (b) The data manipulation language (DML)

   (c) The database administrator (DBA)

   (d) A query language

7. The file organization that provides very fast access to any arbitrary record of a file is :

   (a) Ordered file

   (b) Unordered file

   (c) Hashed file

   (d) B-tree

8. An.....consists of a search-key value and pointers to one or more records with that value as their search-key value :

   (a) Index entry

   (b) Index hash

   (c) Index cluster

   (d) Index map

9. In a granularity hierarchy the highest level represents the :

   (a) Entire database

   (b) Area

   (c) File

   (d) Record

10. One common approach of preventing deadlock, before beginning an update is :

   (a) Lock the one row

   (b) Lock the database

   (c) Lock all the database

   (d) None of these

SECTION-B

(Short Answer Type Questions) 4×5=20

Note :– Attempt any **four** questions of the following. Each question carries **five** marks.

1. What is data independence? Describe its types.

2. List all basic operators of relation algebra with their use.

3. What is functional dependency? List different types of functional dependency and discuss any **one** of them.

4. Write a note on constraints and trigger.

5. What do you understand query execution plan?

6. Briefly describe the log based recovery in database .

SECTION - C

(Long Answer Type Questions) 3×10=30

Note :– Attempt any **three** questions of the following. Each question carries **ten** marks.

1. What is database modeling? How is E-R model different from other data models? What are the main advantages of the E-R model?

2. What do you mean by normalization? Explain BCNF and 3NF with a suitable example.

3. Consider the following relations :

Hotel {Hotel no, name, city}

Room {Room no, hotel no, type, price}

Booking { Hotel no, guest no, date from, date to, room no.}

Guest { Guest no, name, address, city}

Write the SQL statements for the following :

(a) List the names and addresses of all guests in Bhopal, alphabetically ordered by name

(b) List the names all guests who are from Sagar, alphabetically ordered by name

(c) List all family rooms with a price below Rs. 400 per night, in ascending order of price

(d) How many hotels are there?

4. Write note on the following :

(i) B-Tree

(ii) Hash table

5. Explain the following:

(i) Concurrency control

(ii) Granularity of data items

(iii) Timestamp ordering in DBMS