Class / Semester / Subject Code: F.Y.B.Sc. (C.S.) / I / USCS104 Database Systems

Date : 21.11.2019 Time : (2 ½ Hours) Total Marks: 75

N.B. (1) All questions are compulsory.
(2) Figures to the right indicate marks for respective sub questions.
(3) Illustrations, in-depth answers and diagrams will be appreciated.
(4) Mixing of sub-questions is not allowed.

Q.1) Attempt All (Each of 5 Marks)

(a) Multiple Choice Questions. **(5)**

(i) Architecture of the database can be viewed as …….
(a) two levels. (b) three levels.
(c) four levels. (d) One levels.

(ii) Grant and revoke are ..... statements.
(a) DDL (b) DML
(c) DCL (d) TCL

(iii) A record in the table is also knows as…….
(a) column (b) tuple
(c) field (d) data

(iv) Math function …….. is used to find absolute value of a number.
(a) FLOOR (b) CEIL
(c) ABS (d) ABSOLUTE

(v) A ……..in a table represents a relationship among tables.
(a) Column (b) Key
(c) Record (d) Data

(b) Answer in One Sentence **(5)**

(i) Define DBMS.
(ii) Define subquery.
(iii) Give one example of derived attribute.
(iv) Write syntax for inserting a row in a table.
(v) Explain the string function ltrim () with example.

(c) Fill in the blanks : **(5)**
(union, intersect, unique, DDL, DML, committed, Stored Query Language, Structured Query Language)

(i) Primary key should be _____.
(ii) CREATE command is _____ command.
(iii) A transactions completes its execution is called as _____.
(iv) _____ is full form of SQL.
(v) The _____ operator takes the results of two queries and returns only those rows that are common in both result sets.

Q.2) Attempt **any THREE** of the following. **(15)**

(i) Explain the characteristics of Database approach over file processing approach.
(ii) Define following terms:
i) Value Set
ii) Composite Attribute
iii) Multivalued Attribute

iv) Simple Attribute
v) Entity Type

(iii) Construct an ER Diagram for Bank Database System. Identify minimum four entity types, their appropriate attributes and relationship among entities. Draw the ER diagram using ER-model notations.

(iv) What does relationship between entities indicate? Explain Binary Relationship and Ternary Relationship with suitable examples.

(v) List and explain different database users.

(vi) Explain data independence with its types.

Q.3) Attempt **any THREE** of the following. **(15)**

(i) Explain following operations of Relational Algebra with algebraic query example.
   i) Selection
   ii) Projection

(ii) What is database normalization? What is its need?

(iii) Explain Group BY and Having Clause with suitable query example.

(iv) Explain all Aggregate Functions with query example

(v) Consider following table. Underline fields are key fields.
Book(bookid, title, author, publisher, category, price,)
Solve following queries.–
   i) Create above table with bookid as Primary Key
   ii) Find out Book titles which starts with 'D'.
   iii) Add a column 'Year' with data type 'NUMBER' in Book table
   iv) Find out Books with price in the range of Rs. 500 to Rs. 1000. [Assume suitable data in 'Book' table]

(vi) What is constraint? Explain different constraints applicable on table columns.

Q. 4 Attempt **any THREE** of the following. **(15)**

(i) Explain any 5 String functions used in Oracle with example.

(ii) What is meant by 'Database Security'? Explain different threats to database.

(iii) What is database 'view'? Explain how to create a view with suitable example.

(iv) What do you mean by privilege with respect to database and its types?

(v) What do you mean by Join? Explain Left outer join and Right outer join with suitable query example.

(vi) Explain Control measures for preventing database threats.

Q 5 Attempt **any THREE** of the following. **(15)**

(i) Explain any 5 Math functions used in Oracle with example.

(ii) Explain the architecture of Database System Environment.

(iii) Explain how to create and drop a user in Oracle?

(iv) Explain 3NF and BCNF.

(v) Explain database schema, database instance and database state in detail.

****