THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2018

(Supplementary/Improvement)

(CUCBCSS - UG)

CC15U BCA3 B03 - DATABASE DESIGN AND RDBMS

(Computer Application - Core Course)

(2015 & 2016 Admissions)

Time: Three Hours   Maximum: 80 Marks

Section A

Answer all questions. Each question carries 1 mark.

1. In DBMS, record-at-a-time manipulation language is also called

   a) low level data manipulation language

   b) high level data manipulation language

   c) internal level data manipulation language

   d) external level data manipulation language

2. Collection of tables to represent both data and relationship is described by _____.

   a) Relational Model   b) Entity Relation Model

   c) Network Model   d) Object Model

3. _____ is a preferred method for enforcing data integrity

   a) Constraints   b) Stored procedure

   c) Trigger   d) Cursors

4. In entity-relationship, entity type which has existence dependency constraint is classified
   as _____.

   a) single entity   b) foreign entity   c) weak entity   d) strong entity

5. Empdt1(empcode, name, street, city, state,pincode). For any pincode, there is only one
   city and state. Also, for given street, city and state, there is just one pincode. In
   normalization terms, empdt1 is a relation in _____.

   a) 1 NF only   b) 2 NF and hence also in 1 NF

   c) 3NF and hence also in 2NF and 1NF

   d) BCNF and hence also in 3NF, 2NF and 1NF

6. The database system must take special actions to ensure that transactions operate properly
   without interference from concurrently executing database statements. This property is
   referred to as _____.

   a) Atomicity   b) Durability   c) Isolation   d) Consistency

7. The situation in which a transaction holds a data item and waits for the release of data item held by some other transaction, which in turn waits for another transaction, is called _____.

   a) serializable schedule   b) process waiting

   c) concurrency   d) deadlo

8. _____ constraints maintains uniqueness in a record.

   a) Entity integrity   b) Referential Integrity

   c) Domain Integrity   d) Check integrity

9. _____ Privileges indicate user to CREATE, ALTER, or DROP database elements.

   a) System   b) Role   c) Object   d) Grant

10. A named set of SQL statements that are considered when a data modification occurs are called _____.

    a) Stored procedures   b) Triggers   c) Packages   d) Trapdoors

(10 x 1 = 10 Marks)

Section B
Answer all questions. Each question carries 2 marks.

11. Define database schema and database instance.

12. What are the ACID properties in transaction processing?

13. Differentiate between primary key, candidate key and super key.

14. Is the functionality of clauses "group by" and "having" the same? Justify your answer.

15. Difference between View and Stored Procedure.

(5 x 2 = 10 Marks)

Section C
Answer any five questions. Each question carries 4 marks.

16. What are the component of the database system environment?

17. Explain the different types of constraints defined in DBMS.

18. What is view? What are the types of views? Write down syntax to create a view.

19. Describe the different types of join operation in SQL, with example.

20. With help of a neat diagram, explain the different states of a transaction.

21. Why are locks significant in DBMS? Explain the different types of locks used.

22. Differentiate between delete, drop and truncate commands.

23. What are triggers? How will you implement a trigger? Illustrate using an example.

(5 x 4 = 20 Marks)

Section D
Answer any five questions. Each question carries 8 marks.

24. What is DBMS? Explain the advantages of database management system over file system.

25. Explain the different levels of abstraction in DBMS.

26. What do you mean by normalization? Explain 1NF, 2NF, 3NF with suitable examples.

27. What is meant by concurrent execution of database in a multi-user system? Discuss why concurrency control is needed giving a suitable example. How the concept of Time stamp based and validation is based Protocols used in concurrency control.

28. What is meant by DML commands? Explain the various DML commands in DBMS.

29. Write the SQL queries for the following: The tables are
    - EMP (empno, job, mgr, hiredate, sap, comm, dept no)
    - Dept (dept-no, sdname, loc)
    - Salgrade (grade, losal, hisal)
      a) Display the details of all the employees sorted on the names.
      b) Find the employees who earn the highest salary in each job. Sort in descending order of salary.
      c) List the employee names, department names and salary for those employees who have completed 1 year of service.
      d) List the employee names, department names and salary for those employees who are earning 0 commission or commission is null. Sort your output in the order of department name.

30. Define the basic structure of a PL/SQL block and explain the advantages of using it. Consider a table student that stores details of all students in a class. Write procedure to:
    - Update mark by 5% for all students who have participated in NSS or NCC.
    - Display status of updation as how much records are updated.

31. Discuss how each of the following constructs is used in SQL, and discuss the various options for each construct. Specify the use of each construct
    - Cursor
    - Nested Queries

(5 x 8 = 40 Marks)

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