16U416 (Pages: 3) Name:…….

Reg. No……..…..……

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2018

(Regular/Supplementary/Improvement)

(CUCBCSS - UG)

CC15U BCS4 B06 - FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEM & RDBMS

(Computer Science – Core Course)

(2015 Admission onwards)

Time: Three Hours Maximum: 80 Marks

PART A

Answer ***all*** questions. Each question carries 1 mark.

1. Tuple in relational algebra refers to:

   (A) Row (B) Column (C) Table (D) Relation

2. E-R modeling technique is:

   (A) Tree structure (B) Top-down method

   (C) Bottom-up method (D) Right-left approach

3. In an E-R diagram ellipses represents

   (A)Entity sets (B) relationship among entity sets

   (C) attributes (D) link in attributes & entity sets

4. Match the following : (a) Create (i) The E-R Model

   (b) Select (ii) Relationship Model

   (c) Rectangle (iii) DDL

   (d) Record (iv) DML

Codes :	(a)	(b)	(c)	(d)
(A)	(iii)	(iv)	(i)	(ii)
(B)	(iv)	(iii)	(ii)	(i)
(C)	(iv)	(iii)	(i)	(ii)
(D)	(iii)	(iv)	(ii)	(i)

5. The logical data structure with one to many relationship is a

   (A) Network (B) Tree (C) Chain (D) All of above

6. The statement in SQL which allows to change the definition of a table is

   (A) Alter. (B) Update. (C) Create. (D) select.

7. Which of the following is correct ?

   I. Two phase locking is an optimistic protocol

   II. Two phase locking is pessimistic protocol

III. Time stamping is an optimistic protocol

IV. Time stamping is pessimistic protocol

(A) I and III (B) II and IV (C) I and IV (D) II and III

8. An advantage of the database management approach is

(A) Data is dependent on programs. (B) Data redundancy increases.

(C) Data is integrated and can be accessed by multiple programs.

(D) None of the above.

9. The ability to modify a schema definition in one level without effecting the schema definition in the next higher level is called ……..

10. Commit and rollback are related to ……..

(A) data integrity (B) data consistency (C) data sharing (D) data security

(10 x 1 = 10 Marks)

PART B

Answer ***all*** questions. Each question carries 2 marks.

11. Define 4NF.

12. Describe the three levels of data abstraction.

13. Explain the difference between an exclusive lock and a shared lock.

14. Define weak and strong entity sets.

15. What is Functional Dependency?

(5 x 2 = 10 Marks)

PART C

Answer any ***five*** questions. Each question carries 4 marks.

16. Draw an ER diagram for an online bookstore.

17. Explain the concept of view in SQL.

18. List the different types of constraints that can be specified in a relational database.

19. Draw and explain the state transition diagram of transaction.

20. Write note on Aggregate functions in SQL.

21. Discuss the main categories of data models.

22. Consider the following relation

Employee (Emp_name,Company_name,Salary)

Write SQL for the following:

(1) Find the total salary of each company.

(2) Find the employee name who is getting lowest salary.

(3) Find the company name which has lowest average salary.

(4) Find the employee name whose salary is higher than average salary of TCS.

23. Explain lock-based protocols for concurrency control.

(5 x 4 = 20 Marks)

PART D

Answer any ***five*** questions. Each question carries 8 marks.

24. Explain briefly about Armstrong rules on functional dependency.

25. List and explain the desirable properties of transactions.

26. With suitable example Explain:

a) Creating and calling scalar functions.

b) Cursors.

c) Implementing triggers.

27. Consider the schemes given below:

Branch-scheme (Branch-name, asset, Branch-city).

Customer-scheme (Customer name, street, customer-city).

Deposit-scheme (Branch-name, account-number, customer-name, balance).

Borrow-scheme (Branch-name. loan-number, customer-name, amount).

Client-scheme (Customer-name, banker-name).

Write the SQL statements for the following :

(i) Find all customers who have a balance of over Rs. 1000.

(ii) Write the query to find the clients of banker Patel, and the city they live in.

(iii) Write a statement o find all the customers who have a loan amount of more than Rs. 1200

(iv) Write a statement to find all the customers whose name starts with "R" and who have a balance of more than Rs. 10,000

28. Discuss about Tuple Relational Calculus and Domain Relational Calculus.

29. Discuss the two phase locking protocol techniques for concurrency control.

30. What is normalization? What is the need for normalization? Explain first, second and third normal form with example.

31. Discuss briefly the advantages of DBMS.

(5 x 8 = 40 Marks)

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