(7 pages)

Reg. No. : ....

Code No. : 7161   Sub. Code : PCSM 23

M.Sc. (CBCS) DEGREE EXAMINATION,
APRIL 2018.

Second Semester

Computer Science

ADVANCED DATABASE MANAGEMENT SYSTEM

(For those who joined in July 2017 onwards)

Time : Three hours   Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A relational database consists of a collection of, each of which is assigned a unique sname.

   (a) figures

   (b) tables

   (c) lists

   (d) values

2. A tuple is simply a sequence (or list) of

   (a) tables

   (b) database

   (c) values

   (d) figures

3. Which one of the following is a set of one or more attributes taken collectively to uniquely identify a record?

   (a) Candidate Key

   (b) Super Key

   (c) Foreign Key

   (d) Primary Key

4. An entity is a "thing" or "object" in the real world that is distinguishable from all other

   (a) objects

   (b) values

   (c) databases

   (d) tables

5. Ordered indices based on a sorted ordering of the

   (a) tables

   (b) values

   (c) figures

   (d) none

6. The bucket to which a value is assigned is determined by a function, called a function —————————.

   (a) hash

   (b) structured

   (c) insert

   (d) pop-up

7. The point in the schedule where the transaction has obtained its final lock (the end of its growing phase) is called the ————————— the transaction

   (a) end point

   (b) insert point

   (c) starting point

   (d) lock point

8. Cascading rollbacks can be avoided by a ————————— of two-phase locking called the strict two-phase locking protocol.

   (a) alteration

   (b) separation

   (c) modification

   (d) insertion

9. Each processor may have several independent cores, each of which can execute a separate instruction

   (a) tuple

   (b) stream

   (c) structure

   (d) figure

10. Model for using third-party servers is

    (a) cloud computing

    (b) database design

    (c) locking protocol

    (d) shrinking phase

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write in detail about Relational Query Language.

       Or

    (b) Describe any two operations in additional relational algebra.

12. (a) Mention the design phases in design process.

Or

(b) Discuss Mapping Cardinalities.

13. (a) Describe dense and sparse indices.

Or

(b) Write about the structure of B^+ Tree index files.

14. (a) Discuss the two—phase locking protocol.

Or

(b) Describe multiversion timestamp ordering.

15. (a) Write in detail about centralized systems.

Or

(b) Discuss the implementation issues in distributed systems.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain in detail about the structure of relational databases.

Or

(b) Discuss tuple relational calculus in detail.

17. (a) Write in detail about Entity Relationship Model.

Or

(b) Explain how to remove redundant attributes in entity sets.

18. (a) Discuss the following :

(i) Hash function

(ii) Handling of bucket overflow in static hashing.

Or

(b) Explain in detail about transaction atomicity and durability.

19. (a) Describe the deadlock prevention, detection and recovery process in detail.

Or

(b) Explain multiple granularity in detail.

20. (a) Discuss in detail about parallel systems.

Or

(b) Explain Query optimization in detail.

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