(6 pages) **Reg. No. :** .....

Code No. : 6920 **Sub. Code : PCSM 23**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Computer Science — Core

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. Consider the attributes ID, City and Name. Which one of this can be considered as a super key?

   (a) Name (b) ID

   (c) City (d) City, ID

2. Which of the following is used to denote the selection operation in Relational Algebra?

   (a) π (b) σ

   (c) $\bowtie$ (d) None of the above

3. In an E-R diagram attributes are represented by _____.

(a) Rectangle (b) Square

(c) Ellipse (d) Triangle

4. In the _____ normal form, a composite attribute is converted to individual attributes

(a) First (b) Second

(c) Third (d) Fourth

5. In multilevel indexes, primary index created for its first level is classified as _____.

(a) Zero level of multilevel index

(b) Third level of multilevel index

(c) Second level of multilevel index

(d) First level of multilevel index

6. The space overhead in dynamic hashing is _____ than that of static hashing.

(a) More (b) Less

(c) Equal (d) None of the above

7. Two phase locking does not ensure freedom from _____.

(a) Obtain locks (b) Release locks

(c) New lock (d) Deadlocks

8. The system has entered a deadlock state. What is the type of the failure?

(a) System crash (b) System error

(c) System failure (d) None of the above

9. In a centralized system, each processor have several independent _____. Each of which executes a separate instruction.

(a) Cores (b) Chunks

(c) Workstation (d) Memory

10. Running a given task, in less time by increasing the degree of parallelism is called _____.

(a) Scaleup (b) Throughput

(c) Response time (d) Speedup

PART B — ($5 \times 5 = 25$ marks)

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

Each answer should not exceed 250 words.

11. (a) Write short notes on keys. Explain them with example.

Or

(b) Explain schema diagram with example.

12. (a) Define the following with example :

(i) Aggregation

(ii) Generalization.

Or

(b) Discuss the various symbols used in ER diagram with example.

13. (a) Write short note on Multiple Key Access with example.

Or

(b) Explain ordered indices. Discuss the two types of ordered indices.

14. (a) Explain two phase locking protocol in detail.

Or

(b) Discuss Multiversion Schemes in concurrency control.

15. (a) Explain Centralized and Client-Server Architecture in detail.

Or

(b) Discuss Distributed Transactions.

PART C — ($5 \times 8 = 40$ marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the various relational operations in detail with example.

Or

(b) Discuss tuple relational calculus with example.

17. (a) Explain the ER model in detail.

Or

(b) Discuss the various features of Good Relational design.

18. (a) Explain Dynamic Hashing. Compare it with Static Hashing.

Or

(b) Discuss B^+ tree index files.

19. (a) Explain Deadlock handling in detail.

Or

(b) Discuss buffer management in detail.

20. (a) Discuss Server System Architecture.

Or

(b) Discuss Intraoperation Parallelism.

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