

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCA DEGREE EXAMINATION MAY 2019
(Second Semester)

Branch - COMPUTER APPLICATIONS

DATABASE MANAGEMENT SYSTEM

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks')

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 x 1 = 10)

A _____ is a collection of high level data description constructs that hide many low level storage details.

- | | |
|-----------------|-----------------|
| (i) Entity | (ii) Data model |
| (iii) Relations | (iv) Datasets |

The collection of information stored in the database at a particular moment is called an _____.

- | | |
|------------------|-------------------|
| (i) Instance | (ii) Entities |
| (iii) Attributes | (iv) Constraints, |

The _____ merges the output of two or more queries into a single set of rows and columns.

- | | |
|---------------|------------|
| (i) Intersect | (ii) Minus |
| (iii) Union | (iv) Join |

In procedures it is possible to pass parameter which is not with the case of

- | | |
|----------------|---------------|
| (i) Cursor | (ii) Triggers |
| (iii) Function | (iv) View |

The _____ operations allows as combining information from any two relations.

- | | |
|-----------------------|---------------------|
| (i) Cartesian product | (ii) Set-difference |
| (iii) Intersect | (iv) Minus |

The _____ operation is suitable for the query that includes the phase of all.

- | | |
|------------------|---------------|
| (i) Intersection | (ii) Division |
| (iii) Union | (iv) Join |

_____ is the command used for reverting changes performed by a transaction.

- | | |
|----------------|---------------|
| (i) Save point | (ii) Revoke |
| (iii) Grant | (iv) Rollback |

_____ are the mechanism intended to prevent destructive instruction between users accessing the same resource.

- | | |
|----------------------|------------------|
| (i) Locks | (ii) Log |
| (iii) Exclusive lock | (iv) Shared lock |

A _____ organizes the search keys with their associated pointers into a hash file structure.

- | | |
|-------------------|-------------------------|
| (i) Dynamic index | (ii) Multi valued index |
| (iii) Hash index | (iv) Covering index |

10 The time taken to insert a new data item is called _____.

- | | |
|----------------------|-------------------|
| (i) Access time | (ii) Compile time |
| (iii) Insertion time | (iv) Process time |

SECTION - B (25 Marks!)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a State and explain various advantages of database management system.

OR

b Explain entity-relationship diagram with suitable example.

- 12 a Describe various join queries used in SQL.
OR
b Define cursor. Explain it with an example.
- 13 a Explain the rename operation used in relational algebra.
OR
b Define normalization. Explain the first and second normal form.
- 14 a With appropriate, example explain commit, rollback and save point commands in SQL.
OR
b Explain various types of locks used in concurrent control mechanism.
- 15 a Describe the properties of indexes.
OR
b Define Hashing. Compare extendible and linear hashing.

SECTION -C (40 Marks!

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 8 = 40)

Question no. 16 is compulsory

- 16 Consider the following two transactions
T₃₁ : read (A);
read (B);
if A = 0 then B: B+1;
write (B).

T₃₂ : read (B);
Read (A);
If B = 0 then A := A + 1;
Write (A).
Add lock and unlock instructions to transactions T₃₁ and T₃₂, so that they observe the two-phase locking protocol. Can the execution of these transactions result in a deadlock?
- 17 a State and explain various Oracle functions with example.
OR
b Explain the structure of PL / SQL. Write a PL / SQL program to implement trigger concept.
- 18 a Explain any five relational algebra operations.
OR
b Explain the third normal form and BCNF with appropriate example.
- 19 a Discuss various lock based protocols.
OR
b Explain the transaction concepts in SQL with examples.
- 20 a How to insert, search and duplicate records in B+ trees?
OR
b Briefly explain properties of indexes and static Hashing.

Z-Z-Z

END