

Suryadatta Education Foundation's
Suryadatta Group of Institutes, Pune-21

MCA Department
END Term Examination- August, 2022

MCA-I (SEM - II): A.Y. 2021-22

Subject- ADBMS

Subject Code: IT 24
Date: 06/08/2022

Total Marks: 50
Time: 10:00 AM to 12:30 PM

Note:

1. Q1. is compulsory of MCQ type consisting 20 questions for 10 marks.
2. Each question carries equal 10 marks.

Q1.

(10 marks)

<p>1. A database server is responsible for which of the following?</p> <p><input checked="" type="radio"/> A. Database storage</p> <p><input type="radio"/> B. Data processing logic</p> <p><input type="radio"/> C. Data presentation logic</p> <p><input type="radio"/> D. All of the above.</p>	<p>2. Which type of data can be stored in the database?</p> <p><input type="radio"/> A. Image oriented data</p> <p><input type="radio"/> B. Text, files containing data</p> <p><input type="radio"/> C. Data in the form of audio or video</p> <p><input checked="" type="radio"/> D. All of the above</p>
<p>3. Which of the following helps in implementing inter-operation parallelism?</p> <p><input type="radio"/> A. Interdependent parallelism</p> <p><input type="radio"/> B. Intra-query parallelism</p> <p><input checked="" type="radio"/> C. Inter-query parallelism</p> <p><input type="radio"/> D. Pipelined parallelism</p>	<p>4. Which of the following is a component of the DBMS?</p> <p><input type="radio"/> A. Data</p> <p><input type="radio"/> B. Data Languages</p> <p><input type="radio"/> C. Data Manager</p> <p><input type="radio"/> D. All of the above</p>
<p>5. Transaction manager is which of the following?</p> <p><input type="radio"/> A. Maintains a log of transactions</p> <p><input type="radio"/> B. Maintains before and after database images</p> <p><input type="radio"/> C. Maintains appropriate concurrency control</p>	<p>6. Which of the following is not a parallel database architecture?</p> <p><input type="radio"/> A. Shared memory</p> <p><input type="radio"/> B. Shared processor</p> <p><input type="radio"/> C. Shared Disk</p> <p><input type="radio"/> D. Shared nothing</p>

D. All of the above.	
<p>7. If one site fails in distributed system then _____</p> <p>A. the remaining sites can continue operating</p> <p>B. all the sites will stop working</p> <p>C. directly connected sites will stop working</p> <p>D. none of the mentioned</p>	<p>8. Processes on the remote systems are identified by _____</p> <p>A. host ID</p> <p>B. host name and identifier</p> <p>C. identifier</p> <p>D. process ID</p>
<p>9. Cloud computing is a kind of abstraction which is based on the notion of combining physical resources and represents them as _____ resources to users.</p> <p>A. Real</p> <p>B. Cloud</p> <p>C. Virtual</p> <p>D. none of the mentioned</p>	<p>10. Which of the following is an essential concept related to Cloud?</p> <p>A. Reliability</p> <p>B. Abstraction</p> <p>C. Productivity</p> <p>D. All of the mentioned</p>
<p>11. is the process of storing data in more than one site or node.</p> <p>A. Data Replication</p> <p>B. Fragmentation</p> <p>C. Both</p> <p>D. None of the above</p>	<p>12. A distributed transaction can be if queries are issued at one or more nodes.</p> <p>A. fully read-only</p> <p>B. partially read-only</p> <p>C. fully read-write</p> <p>D. partially read-write</p>
<p>13. The log is a sequence of _____ recording all the update activities in the database.</p> <p>A. Log records</p> <p>B. Records</p> <p>C. Entries</p> <p>D. Redo</p>	<p>14. In the _____ phase, the system replays updates of all transactions by scanning the log forward from the last checkpoint.</p> <p>A. Repeating</p> <p>B. Redo</p> <p>C. Replay</p> <p>D. Undo</p>
<p>15. Which of the following is not a recovery technique?</p>	<p>16. is an alternative of log based recovery.</p>

Questi

<p>A. Deferred update B. Immediate update C. Two-phase commit D. Recovery management</p>	<p>A. Disk recovery B. Shadow paging C. Dish shadowing D. Crash recovery</p>
<p>17. Most backup and recovery commands in are executed by server sessions.</p> <p>A. Backup Manager B. Recovery Manager C. Backup and Recovery Manager D. Database Manager</p>	<p>18. Defines the functions of tables in 2NF ?</p> <p>A. BCNF B. hidden dependencies eliminated C. eliminating insertion anomalies D. have a composite key</p>
<p>19. In which form of function there is no partial functional dependencies.</p> <p>A. BCNF B. 2NF C. 3NF D. 4NF</p>	<p>20. Define the function of BCNF ?</p> <p>A. dependency preserving and lossless join B. not dependency and lossless join C. dependency preserving and not lossless join D. none of these</p>

- Q2. (a) Explain Views of data- Schemas and instances (3 marks)
- (b) Explain about Client server architecture (3 marks)
- (c) Explain codd rules in detail (4 marks)

OR

- Q2. (a) Explain Relational Model Concepts in DBMS (3 marks)
- (b) Explain DBMS ,Need and Characteristics of DBMS (3 marks)
- (c) Explain normalization and its types with example (4 marks)

- Q3. (a) Explain database transaction with ACID properties in detail (3 marks)
- (b) Explain concurrency control with types lock with example (3 marks)
- (c) Explain Time stamp-based ordering protocol (4 marks)

OR

No. of Questions : 5]

SEAT No. []

- Q3. (a) Explain Deadlock and how to handle deadlock using techniques (3 marks)
(b) Explain two phase lock protocol (3 marks)
(c) Explain concurrency control with Problems in concurrency Controls with example (4 marks)

- Q4. (a) Explain Database security issues in detail. (3 marks)
(b) Explain crash and recovery techniques (3 marks)
(c) What is Shadow Paging in Data recovery explain with diagram (4 marks)

OR

- Q4. Explain cryptography with Encryption techniques (3 marks)
(a) Explain authentication and authorization in detail.(3 marks)
(b) Explain Database backup and types of backups in detail (4 marks)

Q5. Write short notes : (Attempt ANY TWO)

(10 marks)

- (a) Cloud Servers
(b) N tier Architecture
(c) Concurrency Control
(d) difference between parallel and distributed database

Total No. of Questions : 5]

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SEAT No. :

[Total No. of Pages : 4

[5865] 204

F.Y. M.C.A. (Management)
IT - 24 : ADVANCED DBMS
(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicates full marks.

Q1) Write correct option or filling the blanks of following questions (each ½ mark).

[10]

- 1) Full form of OQL is _____.
a) Object Oriented Language b) Object Query Language
c) Object Quantum Language d) Object Query Logic
- 2) A database which is able to handle complex relationship _____.
a) DBMS b) File
c) Information d) OODBMS
- 3) A DBMS uses a transaction _____ to keep track of all transaction that update the database.
a) log b) table
c) block d) statement
- 4) A timestamp ordering scheme ensures _____.
a) Serializability b) Cascading
c) Atomicity d) Consistency
- 5) DBMS running across multiple processors called as _____.
a) Distributed system b) Parallel system
c) Centralized system d) None
- 6) In an E-R Diagram entities are represented by _____.
a) Circle b) Rectangle
c) Diamond d) Ellipse
- 7) Rows of a relation are called _____.
a) tuple b) a relation
c) a data structure d) an entity

P.T.O.

- 8) Which of the constraint can be enforced one per table _____
- a) Primary key
 - b) Not null
 - c) Foreign key
 - d) Check
- 9) Which of the following cannot be taken as a primary key?
- a) Id
 - b) Register Number
 - c) Dept. Id
 - d) Street
- 10) Which of the following is not NOSQL Database?
- a) Cassandra
 - b) MongoDB
 - c) SQL server
 - d) None of the above
- 11) What are the type of NOSQL Database.
- a) Document database
 - b) Key value store
 - c) Graph of column-oriented database
 - d) All of the above
- 12) The core principle of NOSQL is:
- a) High availability
 - b) Low availability
 - c) Both high & low availability
 - d) None of the above
- 13) Which of the following is not a type of data base?
- a) Hierarchical
 - b) Network
 - c) Distributed
 - d) Decentralized
- 14) The ability to query data as well as insert, delete alter is offered by
- a) TCL (Transaction Control language)
 - b) DCL (Data Control Language)
 - c) DDL (Data Definition Language)
 - d) DML (Data manipulation Language)
- 15) A distributed transaction can be _____ if queries are issued at one or more nodes.
- a) Fully read-write
 - b) Partially read-write
 - c) Partially read-only
 - d) Fully read-only

- 16) Which statement is used to revoke an authorization.
- Revoke
 - Modify
 - Alter
 - Commit
- 17) A distributed database has which of the following advantages over a centralized database?
- Software complexity
 - Slow response
 - Modular growth
 - Software cost
- 18) In which year NOSQL was released
- 1996
 - 1997
 - 1998
 - 1999
- 19) Which of the following is a NOSQL Database?
- SQL
 - JSON
 - Document Database
 - All of the above
- 20) A schedule in which each transaction is executed atomically is called a.
- Non serial schedule
 - Serial schedule
 - Parallel schedule
 - Non parallel schedule

Q2) Draw the E-R Diagram for the following system & explain notation & Relationship XYZ hospital is a multispeciality hospital that includes a names of department, rooms, Doctors, nurses, compounders of other working staff. Patient having different kind of ailments come to the hospital of get checkup done from the concerned doctors. If required they are admitted in the hospital of discharged after treatment. The aim of this case study is to design and develop a database for the hospital to maintain the records of various department, rooms and doctors in the hospital. It also maintains records of the regular patients, patient admitted in the hospital, the checkup of patient done by the doctors, the patients that have been operated and patient discharged from the hospital. [10]

OR

What is meant by lock? Explain two phase locking protocol for concurrency control with example. [10]

- Q3)** a) Describe the data base 3-tier schema architecture? [5]
b) Write short note on mobile database. [5]

OR

- a) What is need of the Database? Write characteristics of DBMS. [5]
b) Write the characteristics of OODDMS. [5]

- Q4)** a) Write the log based recovery techniques with example? [5]
b) Write short note on Grant and revoking privilege with example. [5]

OR

- a) What is Database Backup of types of backup? [5]
b) Write short note on mandatory Access control. [5]

- Q5)** Explain the Inter query of Intraquery parallelizm in details with example. [10]

OR

Explain different between homogeneous and hetrogeneous database with example. [10]

Total No. of Questions : 5]

PA-2559

SEAT No. : 18810

[Total No. of Pages : 4

[5948]-204

M.C.A. - I (Management)
IT - 24 : ADVANCED DBMS
(2020 Pattern) (Semester - II)

Time : 2½ Hours]

[Max. Marks : 50

Instructions to the candidates:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.

Q1) Write correct option or fill in the blanks of following questions (each ½ marks) [10] 6

- a) Part of entire database is shown by _____ level of abstraction.
 - i) Physical
 - ii) Conceptual
 - iii) View
 - iv) Logical
- b) Schema Definition is written by _____.
 - i) Database Administration
 - ii) Application Developer
 - iii) Storage manager
 - iv) Database manage
- c) What is the aim of NOSQL _____
 - i) Not suitable for storing structured data
 - ii) Allow storing non-structured data
 - iii) New data format to store large datasets
 - iv) An alternative to SQL database to store textool data
- d) Normalization is a process of restructuring a relation to _____.
 - i) Minimize duplication of data in a database
 - ii) Maximize duplication of data in a database
 - iii) Make it of uniform size
 - iv) allowaddition of data
- e) A relation is said to be 3-Nf if which of the following is/are ture _____.
 - i) No partial key dependencies
 - ii) All attributes are atomic
 - iii) No presence of transitive dependencies
 - iv) All of the mention
- f) What are the ACID properties of a transaction _____.
 - i) Atomicity, consistency, Isolation, Database
 - ii) Atomicity, consistency, Isolation, Durability
 - iii) Atomicity, consistency, Inconsistence, Durability
 - iv) Atomatically, concurrency, Isolation, Durability

P.T.O.

- g) Which of the following are the simplest NOSQL database _____
 i) Key-Value ii) Wide Column
 iii) Document iv) All of the mention
- h) The initial State of a transaction is known as _____
 i) Active ii) Failed
 iii) Aborted iv) Partial committed
- i) NOSQL database is used mainly for handling large volumes of _____ data
 i) Unstructured ii) Structured
 iii) Semi-structured iv) All of the above
- j) Which of the following is not NO-SQL database?
 i) Cassandra ii) MongoDB
 iii) SQL server iv) None of the above
- k) When has partitioning is a better choice than range partitioning _____
 i) Dont know beforehand how much data will map into a given range
 ii) Size of range partitions would differ Quite substantially
 iii) Partition pruning and partition-wise joins on a partitioning attributes are important
 iv) All of the mentioned
- l) The core principle of NOSQL is _____
 i) high availability ii) low availability
 iii) Both high & low availability iv) None of above
- m) Which of the following is not parallel database arechitecture?
 i) Shared memory ii) Shared processor
 iii) Shared Disk iv) Shared Nothing
- n) In which state, the transaction will wait for the final statement has been executed _____
 i) Active
 ii) Failed
 iii) aborted
 iv) Partial Committed
- o) A SQL query with location transparency needs to specify
 i) Fragment ii) locations
 iii) local formates iv) all of the above
- p) _____ is an essential part of any backup system:
 i) Filter ii) recovery
 iii) Scalability iv) Security
- q) In log based recovery, the log is sequence of _____
 i) Filter ii) records
 iii) block iv) numbers

- r) _____ deals with individual transactions.
- i) Isolate transactions ii) transaction recovery
 - iii) system recovery iv) media recovery
- s) Public-key cryptography is also known as _____
- i) Asymmetric ii) Symmetric
 - iii) Both (i) & (ii) iv) None of the above
- t) A schedule in which each transaction is executed atomically is called a _____
- i) Non-serial schedule ii) Serial schedule
 - iii) parallel schedule iv) Non-parallel schedule

Q2) Case study:

Organisation made up to various department, each having a name. identifying no. and an employee who is the manager. A department may be located in different places. Information about employee includes name, identification number, birth date, address, sex, & salary. Each employee is assigned to one department, the date the manager is appointed to a department is also tracked. Employees may be directly supervised by another employee. Each project within the organization is controlled by a department employees (not necessarily from the controlling dept). are assigned to projects. Information about project includes project name, no, and location hours spent by employees on each project are also kept.

Draw the E-R diagram for the above system & explain the notations & relationship. [10]

OR

What is concurrency control? Explain all protocols in concurrency control. [10]

Q3) a) Describe the three- schema architecture. [5]

b) Compare RDBMS, OODBMS with at least 5 points. [5]

OR

a) What are the characteristics of the DBMS. Explain data independency. [5]

b), Explain the multimedia database with its architecture. [5]

Q4) a) What do you mean by log-based recovery. Explain with example. [5]

b) What is difference between Discretionary access control & mandatory access control. [5]

OR

a) What are different types of database backups & explain any one. [5]

b) Write short note on Grant & revoking privileges. [5]

Q5) a) What is Distributed database system? Explain the data Replication & Data fragmentation. [10]

OR

b) Explain Inter-Operational & Intra-operational parallelism in details. [10]