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MASTERS IN INFORMATION TECHNOLOGY
MODEL QUESTION PAPER
END SEMESTER, SEMESTER-I

TIME: 2 HOUR **FM: 70**

SUB: DATABASE MANAGEMENT SYSTEMS **PAPER: CCMIT102**

SECTION A

Direction: ALL QUESTIONS ARE COMPULSARY: **10X2=20**

(THERE ARE 25 QUESTIONS IN MODEL QP BUT IN EXAM ONLY 10 QUESTIONS WILL BE THERE)

1. Given the basic ER and relational models, which of the following is INCORRECT?
   a) An attribute of an entity can have more than one value
   b) An attribute of an entity can be composite
   c) In a row of a relational table, an attribute can have more than one value
   d) In a row of a relational table, an attribute can have exactly one value or a NULL value
2. The total participation by entities is represented in E-R diagram as
   a) Dashed line
   b) Double line
   c) Double rectangle
   d) Circle
3. The term for information that describes what type of data is available in a database is:
   a) Data dictionary
   b) data repository
   c) Index data
   d) Metadata
4. . If a relation is in BCNF, then it is also in
   a) 1 NF
   b) 2 NF
   c) 3 NF
   d) All of the mentioned
5. A domain is _____ if elements of the domain are considered to be indivisible units.
   a) Atomic
   b) Subatomic

c) Substructure
d) Subset

6. If the decomposition is able to represent all the facts about the relation then such a decomposition is called as?
   a) Lossless decomposition
   b) Lossy decomposition
   c) Insecure decomposition
   d) Secure decomposition
7. QUEL is expressed using
   a) Language of clauses
   b) Retrieve clause
   c) Where clause
   d) All of the above
8. QBE is based upon
   a) Relational algebra
   b) Tupple relational calculus
   c) Domain relational calculus
   d) All of the above
9. QBE stands for
   a) Query by equation
   b) Query by entity
   c) Query by entity set
   d) Query by example
10. QUEL is based on
    a) Relational algebra
    b) Stube
    c) Domain relational calculus
    d) All of the above

11. Which of the following is a type of UML diagram:
    a) Activity
    b) Context
    c) User Interface
    d) None of the above

12. Key elements of Use Case Diagrams are

    a) People, Computer

    b) Actors, use cases

    c) People, classes and objects

    d) Uses, classes

13. What can UML interfaces be used for:

    a)To provide concrete classes with the stereotype "interface"

    b)To program in Java and C++, but not in C#

    c)To define executable logic that can be reused in several classes

    d)To specify required services for types of objects

14. If you need to show the physical relationship between software components and the hardware in the delivered system, which diagram can you use?
    a) Component diagram
    b) Deployment diagram
    c) Class Diagram
    d) Network Diagram
15. Which diagram is NOT commonly used for illustrating use cases?

a) System sequence diagram
b) Activity diagram
c) Use case Diagram
d) Collaboration Diagram

16. A domain is atomic if elements of the domain are considered to be _____ units.
    a) Different
    b) Indivisbile
    c) Constant
    d) Divisible

17. Course(course_id,sec_id,semester)
    Here the course_id,sec_id and semester are _____ and course is a _____

a) Relations, Attribute
b) Attributes, Relation
c) Tuple, Relation
d) Tuple, Attributes

18. The term attribute refers to a _____ of a table.
a) Record
b) Column
c) Tuple
d) Key

19. If we want to retain all duplicates, we must write _____ in place of union.
a) Union all
b) Union some
c) Intersect all
d) Intersect some

20. It is used to establish an association between related tables.
a) Line
b) Relationship
c) Primary Key
d) Records

21. The intersection operator is used to get the _____ tuples.
a) Different
b) Common
c) All
d) Repeating

22. A _____ indicates an absent value that may exist but be unknown or that may not exist at all.
a) Empty tuple
b) New Value
c) Null Value
d) Old value

23. In one-to-many relationship the table in 'one' side is called _____
a) Child
b) Owner
c) Parent
d) Member

24. The third stage of designing a database is when we create_____ between tables
a) Relationship
b) Join
c) Query
d) None of these

25. In a database Table, the each category of information Is called _____
a) Tuple
b) Field
c) Record
d) All of the above

SECTION B

Direction: ANSWER ANY 4 QUESTIONS **5X4=20**

1. Explain the Entity-Relationship model by taking a suitable example.
2. Explain the multivalued dependencies based normal form with an example.
3. Mention the different data models of DBMS.
4. List out the keys available in relational databases.
5. Differentiate File systems and Database Management system.
6. Explain the advantages of DBMS
7. What are integrity constraints ? Explain various types of integrity constraints with suitable example.
8. What are the functions of DBA? Also explain data dictionary.
9. Explain weak entity, Foreign key, Database Administrator, data model.
10. Explain BCNF in detail.

SECTION C

Direction: ANSWER ANY 2 QUESTIONS **15X2=30**

1. Consider the following relational schema
   Employee (empno, name, office, age)
   Books (isbn, title,authors,publisher)
   Loan (empno, isbn, date)
   Write the following queries in relational algebra.
   a. Find the names of employees who have borrowed a book Published by Navathe.
   b. Find the names of employees who have borrowed all books Published by Navathe.
   c. For each publisher, find the names of employees who have borrowed more than five books of that publisher.

2. A Library lends books and magazines to member, who is registered in the system. It also maintains the purchase of new books and magazines for the Library. A member can reserve a book or magazine that is not currently available in the library, so that when it is returned or purchased by the library, that person is notified. The library can easily create, replace and delete information about the books, members, and reservation in the system. The books transactions are stored in the database. The fine list while the member returns the book after the due date must be generated. Analyze the users and actors of this system, and the interactions between them must be depicted.
3. Discuss in detail about relational algebra and relational calculus with an example for each.
4. Explain the three tier architecture of DBMS in detail.
5. Design a class diagram for Library management system
6. Explain Aggregation, Generalisation, Specialisation.

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