Branch : CSE & IT   Batch : Vijay (Hinglish)

Database Management System
## ER Model & Query Language   Practice Set 04

[MCQ]

1. Which of the following statements about ER model is/are correct?

S_1: Relationship sets can have attributes of their own.

S_2: Many to many relationships cannot be represented in ER diagram.

S_3: Multi value attributes and weak entity set allowed in RDMS.

(a) S_1 only

(b) S_1 and S_3 only

(c) S_2 and S_3 only

(d) S_1, S_2 and S_3
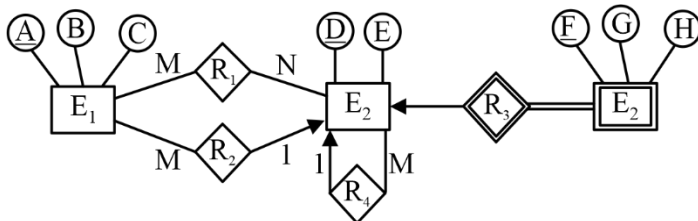
[MCQ]

2. Consider the following ERD:
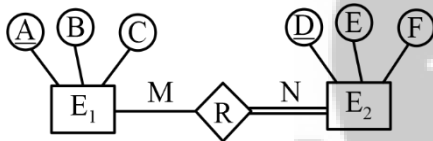
Which of the following is the minimum number of relational table and foreign key required for above ERD?

(a) 3, 2

(b) 1, 1

(c) 2, 1

(d) None of thee

[MCQ]
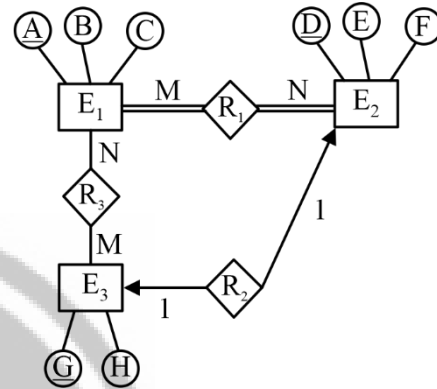
3. Consider the following ER model:

Which of the following is the minimum number of relational tables and minimum number of foreign keys required for conversion into relational table?
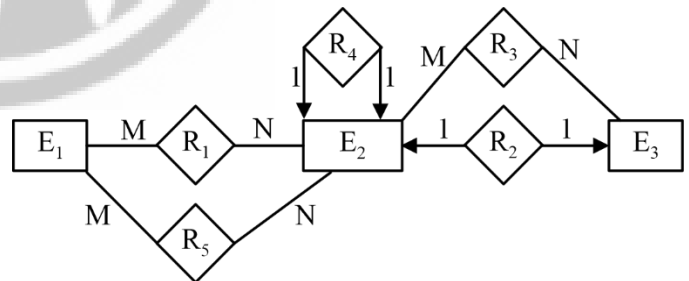
(a) 6, 4

(b) 4, 5

(c) 5, 4

(d) 4, 6

[NAT]

4. Consider the following ER model:

Assume X is the minimum number of tables, Y is the total number of attributes in relational tables and Z is the minimum number of foreign keys, then find the value of $X + Y + Z$?
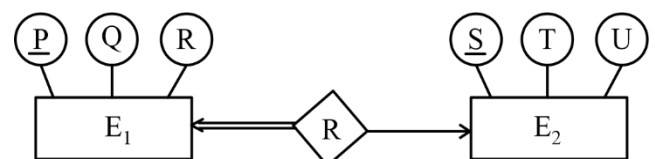
[NAT]

5. Consider the following ER diagram

Total number of RDBMS table in the above diagram?

[MCQ]

6. Consider the following ER model:

If 'x' entries in E1 and 'y' entries in E2.

How many entries in relation set (R)?

(a) Exactly y

(b) At most x

(c) Exactly x

(d) at least x and at most m

[MCQ]

7. Consider the following relation Supervision(EmployeeID, Name, SupervisorID)pertaining to a company's database:

EmployeeID	Name	SupervisorID
1	A	4
2	A	3
3	B	1
4	C	5
5	D	2
6	E	5
7	B	3
8	A	1

The attributes SupervisorID acts as a Foreign key in the relation Supervision.

The following operations are performed on the relation:

I: Insert a new employee having EmployeeID=='9'and Name = A and SupervisorID as '1';

II: Set SupervisorID as 'NULL' where EmployeeID = =2 OR EmployeeID==4;

III: Set SupervisorID as '0' where EmployeeID==1;

Which of the above operation(s) is/are ALLOWED?

(a) I only   (b) I and II only

(c) III only   (d) I and III only

[NAT]

8. Consider the following SQL Query:

Create table department

```
{
    a integer;
    b integer;
    primary key (a);
    foreign key (b) reference department ON
    DELETE CASCADE
};
```

The Tuples (a, b) currently in the table department are:

(0, 2) (1, 2) (2, 1) (3, 0) (5, 0) (7, 3) (4, 2) (6, 1)

Consider the following query

Delete from department where a = 0

The number of tuples that must be additionally deleted to preserve referential integrity is _____.

[NAT]

9. Consider the following relation Supervision (EmployeeID, Name, SupervisorID) pertaining to a company's database:

EmployeeID	Name	SupervisorID
1	A	4
2	A	6
3	B	2
4	C	5
5	D	2
6	E	3
7	B	4
8	A	1

The attribute SupervisorID acts as a Foreign key in the relation Supervision. The schema follows "On Delete Cascade" constraint. The employee having EmployeeID '5' is deleted from the relation Supervision. The number of tuples remaining in the relation are _____.

[NAT]

10. Consider the following relational schemas:

Catalogue		
sno	pno	cost
S1	P1	150
S1	P2	50
S1	P3	100
S2	P4	200
S2	P5	250
S3	P1	250
S3	P2	150
S3	P5	300
S3	P4	250

Suppliers		
sno	**sname**	**location**
S1	M/s Royal furniture	Delhi
S2	M/s Balaji furniture	Bangalore
S3	M/s Premium furniture	Chennai

Parts		
pno	**pname**	**part_spec**
P1	Table	Wood
P2	Chair	Wood
P3	Table	Steel
P4	Almirah	Steel
P5	Almirah	Wood

All the items supplied by M/s Balaji Furniture are banned. Moreover, the company no longer sells steel items. The schema follows "On Delete Cascade" constraint. Delete all the records from Catalogue where sno = S2 OR pno = P3 OR pno = P4. The number of tuples deleted from the Catalogue relation is _____.

[MCQ]

11. Consider the following statements:

P: Insertion of tuples into referenced relation may cause foreign key violation.

Q: Insertion of tuples into referencing relation may cause foreign key violation.

Which of the following is/are CORRECT?

(a) P only   (b) Q only

(c) Both P and Q   (d) Neither P nor Q

[MCQ]

12. Consider the following statements:

S$_1$: $\pi_{\text{List N}} \left(\pi_{\text{List N–1}......} (\pi_{\text{List 1}}(R)) \right)$

$\equiv \pi_{\text{List 1}} \left(\pi_{\text{List 2}......} (\pi_{\text{List N}}(R)) \right)$

S$_2$: $\sigma_{c_n} \left(\sigma_{c_{n-1}} ..... \left(\sigma_{c_1}(R) \right) \right) \equiv \sigma_{c_1} \left(\sigma_{c_2} .... \left(\sigma_{C_N}(C) \right) \right)$

Which of the following statement(s) is/are correct?

(a) S$_1$ only

(b) S$_2$ only

(c) Both S$_1$ and S$_2$ only

(d) Neither S$_1$ nor S$_2$

[NAT]

13. Consider the following relations-

Enroll (CandidateID, Papercode) with 5000 tuples and Count (Papercode, Number_of_appearing_candidates) with 29 tuples.

Assume, one candidate can enroll for multiple Papercode. Let p and q be the maximum and minimum number of records in Count $\bowtie$ Enroll then the value of p + q is _____.

[MCQ]

14. Let R$_1$ and R$_2$ be two relations which are union compatible with the same set of attributes.

S$_1$: $R_1 \cap R_2 = T_1 \bowtie T_2$

S$_2$: $R_1 \cup R_2 = T_1 \bowtie T_2$

Which of the above statement(s) are INCORRECT?

(a) S$_1$ only

(b) S$_2$ only

(c) Both S$_1$ and S$_2$ only

(d) Neither S$_1$ nor S$_2$

[MSQ]

15. Consider the following relations:

Enroll (Sid, Papercode), Paper(Papercode, Desc)

Which of the following relational algebra displays the sid's who only enrolled for Papercode having descriptions (Desc) as "CS"?

(a) $\pi_{\text{sid}} (\text{Enroll} \underset{\text{Desc} = \text{CS}}{\bowtie} \text{Paper})$

(b) $\pi_{\text{sid}} (\text{Enroll}) - \pi_{\text{sid}} ((\text{Enroll} \bowtie \underset{\text{Desc} = \text{CS}}{\sigma} (\text{Paper}))$

(c) $\pi_{\text{sid}} (\text{Enroll}) - \pi_{\text{sid}} ((\text{Enroll} \bowtie \underset{\text{Desc} < > \text{CS}}{\sigma} (\text{Paper}))$

(d) None

[MCQ]

16. Consider a relations work (EmpiD, Project ID)

The suitable relational algebra expression that projects the employee ids who work exactly in one project is-

(a) $\pi_{Empid}(\text{Work}) - \pi_{Empid}(\text{Work} \underset{\substack{Empid = E \\ \wedge \\ Project\ Id = P}}{\bowtie} \rho_{E, P}(\text{work}))$

(b) $\pi_{Empid}(\text{Work} \underset{\substack{Empid = E \\ \wedge \\ Project\ ID \neq P}}{\bowtie} \rho_{E, P}(\text{work}))$

(c) $\pi_{Empid}(\text{work}) - \pi_{Empid}(\text{work} \underset{\substack{Empid = E \\ \wedge \\ Project\ ID \neq P}}{\bowtie} \rho_{E, P}(\text{work}))$

(d) None

[MCQ]

17. Let R_1 and R_2 be two relations with n and m tuples.
    S_1: The maximum number of records in $R_1 - R_2$ is n.
    S_2: The minimum number of records in $R_1 \cup R_2$ is max (n, m)
    (a) S_1 only   (b) S_2 only
    (c) Both S_1 and S_2 (d) Neither S_1 nor S_2

[MSQ]

18. Consider the relation-
    Works (<u>Eid Pid</u>) project (Pid, Name)
    The relational algebra expression that displays the Eids who work in every project Name = 'M_____.
    (a) $\pi_{Eid, Pid}(\text{works}) / \pi_{Pid}(\sigma_{Name = M}(\text{Project}))$
    (b)

    $\pi_{Eid}(\text{Work}) - \underset{Eid}{\pi}\left[\pi_{Eid}(\text{Work}) \times \pi_{pid}\left(\underset{Name = m}{\sigma}(\text{Project})\right) - \pi_{Eid\ Pid}(\text{works})\right]$

    (c)

    $\pi_{Eid}(\text{Work}) - \left[\pi_{Eid}(\text{Work}) \times \pi_{pid}\left(\underset{Name <> m}{\sigma}(\text{Project})\right) - \pi_{Eid\ Pid}(\text{works})\right]$

    (d) None

[MCQ]

19. Consider the two relations R_1 and R_2 such that they have no attributes in common then-
    S_1: $R_1 \bowtie R_2 = R_1 \times R_2$
    S_2: $R_1 \bowtie R_2 = \phi$
    Which of the given statement(s) is/are correct?
    (a) S_1 only
    (b) S_2 only
    (c) Both S_1 and S_2
    (d) Neither S_1 nor S_2

[MCQ]

20. Consider the following keywords.
    A. SELECT
    B. TOP
    C. DISTINCT
    D. FROM
    E. WHERE
    F. GROUP BY
    G. HAVING
    H. ORDER BY
    The above keywords are used in the given SQL query below.
    SLECT TOP Number_of_Rows DISTINCT Col1, Col2
    FROM TableNameX, TableNameY
    GROUP BY ColumnName
    HAVING expression
    ORDER BY ColumnName;
    Which of the following is the correct query execution order according to SQL Standard?
    (a) D E F G A H B C
    (b) D E F G A C H B
    (c) D E F G A B C H
    (d) A D E F G H C B

[NAT]

21. Consider a relation A(P,Q) currently has tuples {(1, 2), (1, 3), (3, 4) } and relation B(Q, R) currently has {(2, 5), (4, 6), (7, 8)}. Then the number of tuples in the result of the SQL query: SELECT * FROM A NATURAL OUTER JOIN B; is_____?

[MSQ]

22. Which of the following statement is/are true about constraints?
    (a) The constraints is applied only to INSERT operation into table.
    (b) A foreign key can't contain NULL values.
    (c) A column with the unique constraint can store NULLS.

(d) We can have more than one column in a table as a part of primary key.

[MCQ]

23. Consider the following statements

    S₁: An INSERT statement can add multiple rows per execution to a table.

    S₂: An UPDATE Statement can modify multiple rows based on multiple condition on a table.

    Choose the correct statements.

    (a) Only S_1 is true

    (b) Only S_2 is true

    (c) Both S_1 is S_2 are true

    (d) Both S_1 and S_2 are false

[MSQ]

24. Which of the below statement are true regarding the WHERE and HAVING clause in a SQL statement?

    (a) WHERE and HAVHIG clause can't be used together in SQL Statement.

    (b) The HAVING clause condition can have aggregate function.

    (c) The WHERE clause is used to exclude rows before the grouping of data.

    (d) The HAVING clause is used to exclude one or more aggregated results after grouping data.

Answer Key

1. (a)	8. (3)	15. (a, c)	22. (c, d)
2. (c)	9. (3)	16. (c)	23. (c)
3. (c)	10. (4)	17. (c)	24. (b, c, d)
4. (17)	11. (d)	18. (a, b)	
5. (6)	12. (b)	19. (a)	
6. (c)	13. (10000)	20. (b)	
7. (b)	14. (b)	21. (4)	