EPT-TEST-12(DBMS)
Duration :-60 mins
No of questions :- 25

1

Consider a relational schema R = {A, B, C, D, E, F, G} and the following functional dependencies hold: {AB ⇒ C, BC⇒ D, E⇒A, D⇒E, F⇒G}.
Which of the following are candidate keys of R?

Select your answer

A ABF, EF

B ABF, BDF, BEF

C ABE, EBF, FBD

D None of these

Marks: - +1
Type: - MCQ
Level: - Easy

2

R(ABCDE) is relational Schema and FD:

$\{A \rightarrow D, B \rightarrow C, D \rightarrow E, CE \rightarrow B\}$

After projecting R on Schema (ABC) which of the following is true

Select your answer

A Only A is key

B (AB) and (AC) is key

C Only AC is key

D none of the above

Marks: - +1

Type: -

MCQ

Level: -

Easy

3

One to many relationship between X(one side) and Y as many side can be modelled as

Select your answer

A modify X side to include foreign key of Y side

B modify Y side to include foreign key of X side

C modify X side to include foreign key of X side

D none of the above

Marks: - +2
Type: - MCQ
Level: - Moderate

4

Consider a precedence graph S having transaction T1, T2, T3.....
if S is serializable than which one of the following ordering of the vertices of the precedence graph is guaranteed to yield a serial schedule?

Select your answer

A Topological order

B DFS

C BFS

D none of the above

Marks: - +2
Type: - MCQ
Level: - Moderate

5

Consider a relation R (ABCDE) with the following dependencies

$A \rightarrow B$

$C \rightarrow D$

$AC \rightarrow E$

$D \rightarrow C$

How many tables will be formed, if we decompose the relation R into 2NF?

Select your answer

A 3

B 2

C 1

D 4

Marks: - +2
Type: - MCQ
Level: - Moderate

6

_____, _____, and _____ are the sql statements used for transaction control.

Select your answer

A Insert, update, delete

B COMMIT, ROLLBACK, SAVEPOINT

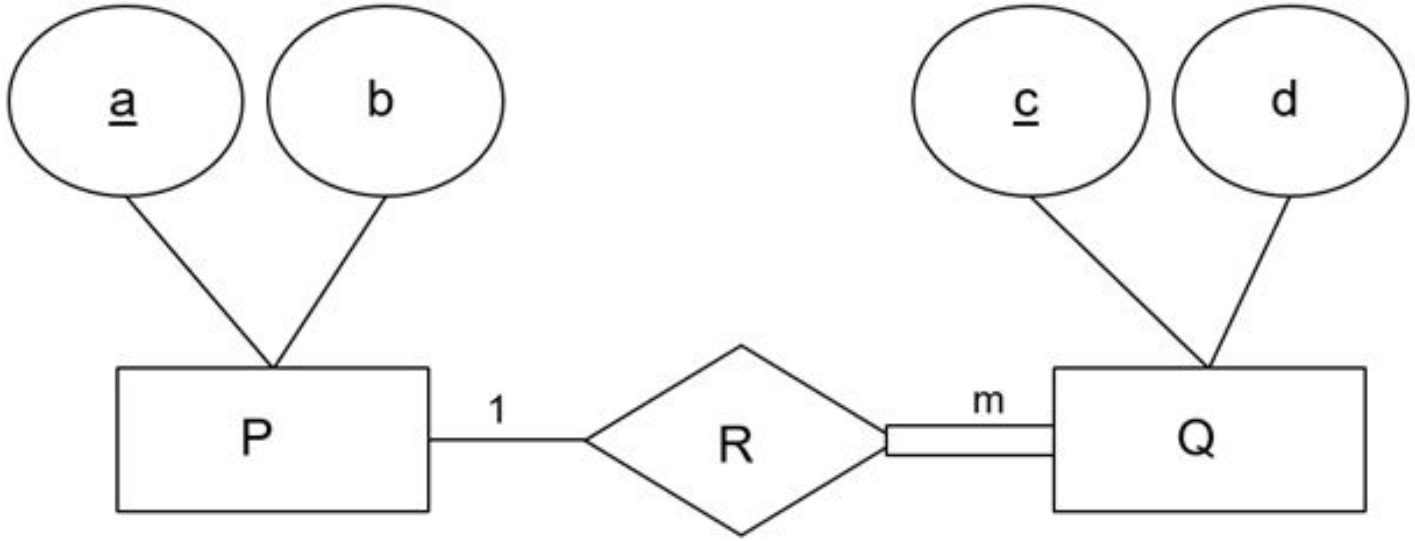
C INSERT, ALTER, DROP

D None of the above

Marks: - +2
Type: - MCQ
Level: - Moderate

7

Consider the following E-R diagram-



What is the minimum number of tables required to convert an E-R diagram into a relational model____?

Enter your answer below

Type your answer here....

Marks: - +1
Type: - NAT
Level: - Easy

8

Consider a company maintaining salary of all its employees in a single account. If an employee wants to access his/her salary, following operations must be executed sequentially.

I. Read Balance

II. Balance = Balance – salary

III. Write Balance

Suppose two employees wants to withdraw their salary concurrently. Then what are the possible number of ways that both the employees can withdraw their salary concurrently. (Ignore the inconsistency in the database) _____.

Enter your answer below

Type your answer here....

Marks: - +2
Type: - NAT
Level: - Moderate

9

Which among the following transactions will never suffer from dirty read problem?

Select one or more answers

A $r_1(x)w_1(x)r_2(x)w_2(x)c_2$

B $r_1(x)w_1(y)r_2(x)w_2(x)c_2$

C $r_1(x)w_1(x)c_1\ r_2(x)w_2(x)c_2$

D $r_1(x)r_2(x)w_1(x)c_1w_2(x)c_2$

Marks: - +2
Type: - MSQ
Level: - Moderate

IO

The task 'T' of updating 'student' database was given to two students S1 and S2. They both performed the updation in the following manner.

T:

Time	S_1	S_2
t1	R(A)	
t2	W(A)	
t3		R(A)
t4		W(A)
t5		Commit

If at time 't6' , S_1 undone all his updations and rollback. Then which among the following is true?

Select your answer

A T is irrecoverable and cascadeless

B T is recoverable and cascadeless

C T is irrecoverable and not cascadeless

D T is recoverable but not cascadeless.

Marks: - +2
Type: - MCQ
Level: - Moderate

11

In Shared and Exclusive locking shared lock (lock-s (data item)): Read only data.
Exclusive lock (lock-x (data item)): Read/ write lock.
Consider the transactions T_1 and T_2 as follows:

T_1	T_2	Time Stamp
lock -S (A)		t_1
R(A)		t_2
	lock -X (B)	t_3
	R(B)	t_4
	W(B)	t_5
lock -S (B)		t_6
R(B)		t_7

Given the following statements, which among them is/are not true?

Select one or more answers

A Lock access at time stamp 't_3' is denied

B Lock access at time stamp 't_6' is denied

C All the Lock access are allowed.

D Lock access at time stamp 't_3' is allowed but at time stamp' t_6' is denied.

Marks: - +2
Type: - MSQ
Level: - Moderate

12

Consider a relation R (A, B, C) and another relation S. To perform relational operation R/S (where '/' is 'Division operator'), what can be the possible attributes of relation S?

Select one or more answers

A (A, B)

B (A, B, C)

C (B, C)

D (A, B, C, D)

Marks: - +1
Type: - MSQ
Level: - EASY

13

Consider the following relation :

STUD

Class	Age	Sname
4	9	Vikas
3	8	Shreya
4	11	Megha
4	10	Rajan
2	6	Ritu

Let us suppose 'x' is a tuple variable ranging over 'STUD' relation. Following TRC expression is given:

$\forall x(\sim (x.class = 4) \vee x.\, age < 10)$

What are the number of tuples that are valid according to the above TRC query:_____.

Enter your answer below

Type your answer here....

Marks: - +2
Type: - NAT
Level: - Moderate

14

Consider a relation R (A, B, C, D, E) with the given functional dependencies are:

$F = \{AB \rightarrow CD, D \rightarrow A, C \rightarrow E, B \rightarrow C\}$

Which of the following functional dependencies violates the properties of Third normal forms?

Select one or more answers

A $AB \rightarrow CD$

B $D \rightarrow A$

C $C \rightarrow E$

D $B \rightarrow C$

Marks: - +2
Type: - MSQ
Level: - Moderate

15

Which of the following functional dependencies is/are non-trivial functional dependency?

Select one or more answers

A $AB \rightarrow A$

B $BC \rightarrow AD$

C $A \rightarrow BC$

D $BCA \rightarrow BC$

Marks: - +2
Type: - MSQ
Level: - Moderate

16

Consider the following functional dependency set:

$PQ \rightarrow R$

$R \rightarrow SX$

$RS \rightarrow QT$

$ST \rightarrow X$

$TX \rightarrow Q$

$T \rightarrow R$

$SR \rightarrow TX$

The following set of functional dependencies are divided into two sets F_1 and F_2 respectively. It is known that $F_1 \supset F_2$.

Which among the following can be the functional dependency set of F_1?

Select your answer

A $PQ \rightarrow R,\ RS \rightarrow QT, R \rightarrow SX, T \rightarrow R$

B $ST \rightarrow X, TX \rightarrow Q, SR \rightarrow TX$

C $PQ \rightarrow R, RS \rightarrow QT, ST \rightarrow X$

D $R \rightarrow SX, TX \rightarrow Q, T \rightarrow R,\ SR \rightarrow TX$

Marks: - +2
Type: - MCQ
Level: - Moderate

17

Consider the following relation R(A,B,C,D,E,F) with the following set of functional dependencies (S).

S = {E -> F, C -> D, AB -> C, F -> B, D -> E}

What is the total number of candidate keys for the relation R?

Select your answer

A 2

B 3

C 4

D 5

Marks: - +2

Type: - MCQ

Level: - Moderate

18

Consider a functional dependency X → Y, A table is in BCNF if,

Select your answer

A X and Y both should be super key

B Only X is super key

C Only Y is super key

D None of the above

Marks: - +1
Type: - MCQ
Level: - EASY

19

Consider a block pointer 6B size, search key value 9B size, data pointer 7B size and block size 512B. Calculate the order of B-tree.

Select your answer

A 24

B 23

C 25

D 26

Marks: - +2
Type: - NAT
Level: - Moderate

20

Consider the following relations given below :

Shopkeepers

Shid	Shname	Item_id	Income
101	a	I_1	10K
102	b	I_3	12K
103	c	I_1	8K
104	d	I_4	6K
105	e	I_2	15K

Items

Item_id	Item_name
I_1	N_1
I_2	N_2
I_3	N_3
I_4	N_4

Consider the following SQL query :

SELECT I.Item_name, I.Item_id. FROM Items I

WHERE (SELECT COUNT(*) FROM Shopkeepers

WHERE S.Item_id = I.Item_id and S.Income <10K) > 3;

The number of tuples returned by the above query is _____

Enter your answer below

Type your answer here....

Marks: - +2

Type: - NAT

Level: - Moderate

21

Consider schedule

S : $R_1(x)$, $R_2(x)$, $R_1(z)$, $R_3(x)$, $R_3(y)$, $W_1(x)$, C_1, $W_3(y)$, C_3, $R_2(y)$, $W_2(z)$ $W_2(y)$, C_2.

Which of the following statements about S is true?

Select one or more answers

A S is irrecoverable

B S has no lost update problem

C S is cascadeless

D S is strict recoverable

Marks: - +2
Type: - MSQ
Level: - Moderate

22

Consider Schedule S :

$R_1(x)$ $R_3(y)$ $W_1(x)$ $W_2(x)$ $W_2(y)$ $W_1(z)$ $R_3(z)$

Assume timestamp order of transactions as –

$(T_1, T_2, T_3) = (10, 20, 30)$

Which of the following statement is true following Basic Timestamp Ordering Protocol.

Select your answer

A T_1 is rolled back

B T_2 and T_3 is rolled back

C T_3 and T_1 is rolled back

D T_2 is rolled back

Marks: - +2
Type: - MCQ
Level: - Moderate

23

Which of the following is TRUE?

Select your answer

A Ensuring Isolation is an optional check for concurrency control system.

B Ensuring Atomicity is not a component of recovery system.

C In case of any failure, Recovery system makes sure that database goes to the previous consistent state.

D None of these

Marks: - +2
Type: - MCQ
Level: -
Moderate

24

Choose the correct statements:

Select your answer

A For fixed length records unspanned organization is preferred.

B For variable length records unspanned organization is preferred.

C For fixed length records spanned organization is preferred.

D None of the above

Marks: - +2
Type: - MCQ
Level: - Moderate

25

Which of the following options are correct for the order for the leaf (P_{leaf}) and non-leaf (P) nodes of a B+ tree where the search key field is 12 bytes, record pointer is 10 bytes, block pointer is 8 bytes and given block size is 512 B?

Select your answer

A $P_{leaf} = 26$ and $P = 22$

B $P_{leaf} = 23$ and $P = 27$

C $P_{leaf} = 22$ and $P = 26$

D $P_{leaf} = 27$ and $P = 23$

Marks: - +1
Type: - MCQ
Level: - EASY

Answer Key

1)B
2)B
3)B
4)A
5)B
6)B
7)2
8)20
9)B,C,D
10)C
11)A,C
12)A,C
13)3
14)C,D
15)B,C
16)A
17)D
18)B
19)A,B
20)5
21)B,C,D
22)D
23)C
24)A
25)C