

EPT-TEST-21(DBMS)

Duration :-45 mins

No of questions :- 18

Consider the following schedules with two transactions T1 and T2:

S1: r1(X), r2(Y), w1(X), w2(Y), commit(T1), r2(X), w2(X), commit(T2)

S2: r1(X), r2(Y), w1(X), w2(Y), r2(X), w2(X), commit(T2), commit(T1)

[r1(X) denotes reading shared resource X by transaction T1 and similarly w1(X) in case of write]

What is the most appropriate argument about these schedules:

Select your answer

A

Both S1 and S2 are recoverable.

B

S1 is cascade less recoverable and S2 is recoverable

C

S1 is strict recoverable and S2 is recoverable

D

S1 is strict recoverable and S2 is irrecoverable

Marks: - +1
Level: - Easy

2

In, we have many mini transactions within the main transaction.

Select your answer

☐ A transaction control

☐ B chained transaction

☐ C nested transaction

☐ D calling transaction

Marks: - +1
Level: -
Easy

3

INSERT, UPDATE, DELETE, DROP comes under DML commands

Select your answer

A true

B true but DELETE does not come

C true but DROP does not come

D none of the above

Marks: - +2
Level: -
Moderate

4

Which of the following statements is incorrect about DBMS or File system?

Select your answer

A

DBMS gives an abstract view of data that hides the details.

B

File systems provide a crash recovery mechanism.

C

File system provides the details of data representation and storage of data.

D

DBMS takes care of Concurrent access of data using some form of locking.

Marks: - +2
Level: -
Moderate

5

Which of the following statements related to attribute is/are incorrect?

Select one or more answers

A

Composite attributes can have multiple values for a single or same entity.

B

Multivalued attributes can be further divided into more attributes.

C

Complex attributes cannot have multivalued as well as composite attributes.

D

Atomic attribute is represented by a dashed ellipse.

Marks: - +2
Level: -
Moderate

6

Which among the following will have more I/O access cost?

Select your answer

A Primary Indexing

B Clustering Index

C Secondary Index over key.

D All have same I/O cost.

Marks: - +2
Level: -
Moderate

7

What will be the I/O access cost to access a record, if 'k' level indexing is done on a database file having 'n' records and 'm' Disk Blocks?

Select your answer

A $\log_2 n + 1$

B $\log_2 m + 1$

C $\log_2 k + 1$

D $k + 1$

Marks: - +1
Level: - Easy

8

In a B Tree following keys are inserted in sequence 42, 13, 28, 25, 48, 60, 54, 26, 43, 78, 65, 15. If the order of B Tree is 4, which is the maximum block pointer a node can have. Then, how many levels will the B Tree have?

Select your answer

☒ A 2

☐ B 3

☐ C 4

☐ D 5

Marks: - +2
Level: -
Moderate

9

Consider a B Tree having 'L' levels, with each node containing maximum '5' block pointers. If total number of keys stored in B Tree are 624, and each node is completely filled. Then which among the following can be the value of 'L'?

Select your answer

A 5

B 4

C 6

D 7

Marks: - +2

Level: -

Moderate

Which among the following expressions are equal?

I. $R \cup S$

II. $R - S$

III. $\{t \mid t \in R \vee t \in S\}$

IV. $\{t \mid t \in R \wedge \forall t_1 \in S (t \neq t_1)\}$

Select your answer

A

I, III, IV are equal

B

II, III, IV are equal

C

I, III are equal and II, IV are equal

D

None of the above are equal

Marks: - +2
Level: -
Moderate

Let a relation R, has 'n' number of attributes R ($A_1, A_2, A_3, \dots A_n$) with the candidate keys (A_1A_2) and (A_3A_4). So, what is the maximum number of super keys for the relation R have?

Select your answer

A $2^{n-1} + 2^{n-1} - 2^{n-2}$

B $2^{n-2} + 2^{n-2} - 2^{n-4}$

C $2^{n-1} + 2^{n-2} + 2^{n-1}$

D $2^{n-2} + 2^{n-4} + 2^{n-2}$

Marks: - +2
Level: -
Moderate

I2

For a relation R (X, Y, Z), the following set of functional dependencies are given:

$\{ X \rightarrow Y, XY \rightarrow Z, YZ \rightarrow Y, Z \rightarrow Z, XZ \rightarrow YZ, Z \rightarrow XY \}$

What are the total numbers of trivial, non trivial and semi non-trivial functional dependencies in the given set of FDs respectively ?

Select your answer

A 2, 2, 2

B 3, 2, 1

C 2, 3, 1

D 1, 3, 2

Marks: - +1
Level: - EASY

I3

A relation consists of functional dependency of the form $X \rightarrow Y$ such that $Y \subseteq X$ then given relation will be in which of the following normal form?

Select one or more answers

☒ A 1 NF

☒ B 2 NF

☒ C 3 NF

☒ D BCNF

Marks: - +2
Level: -
Moderate

I4

Consider the following schedules S1 and S2

S1: R1(A), R2(B), W2(A), W3(B), R3(C), W1(C)

S2: R1(A), R2(B), W1(C), R3(B), R3(C), W2(B), W3(A)

Which of the following statements is true?

Select your answer

A

Both S1 and S2 are allowed under 2PL.

B

Only S1 is allowed under 2PL.

C

Only S2 is allowed under 2PL.

D

Neither S1 nor S2 is allowed under 2PL.

Marks: - +2

Level: -

Moderate

15

The following keys are inserted in a B⁺ Tree which has order of 4.

5, 10, 15, 23, 35, 13, 8, 18

How many times the leaf node splits up during the insertion of given keys?

Enter your answer below

Type your answer here....

Marks: - +2

Level: -

Moderate

Let $R(A, B, C, D, E)$ be a relation which has 500000 records, size of each record is 200B. Size of attribute A is 16B, size of pointer is 4B and size of block is 2400B. (Assume elements are stored in sorted order of key). where A is a primary key.

The absolute difference of the cost in terms of number of block transfer from the disk when multilevel index used and when binary search applied without indexing is used _____.

Select your answer

A 12

B 10

C 11

D 13

Marks: - +2
Level: -
Moderate

17

Consider the following statements regarding indexing

I Secondary index on non key field is always non-dense in nature

II In clustered indexing, records are ordered based on non-key attribute and indexing is applied on that non-key attribute only.

Which of the above is/are TRUE?

Select your answer

☐ A I only

☐ B II only

☐ C Both

☐ D None

Marks: - +2

Level: -

Moderate

I8

Consider the following schedule :

S : $r_1(A)$, $r_2(A)$, $r_1(A)$, commit_1 ,
 $w_3(A)$, commit_2 , $r_3(A)$, commit_3

Which of the following is true?

Select your answer

A

Schedule is not view
serializable

B

Schedule is not conflict
serializable

C

Schedule is conflict
serializable

D

Schedule is conflict
serializable as well as view
serializable

Marks: - +1
Level: - EASY

DBMS answers

1.D

2.B

3.C

4.B

5.A,B,C,D

6.C

7.D

8.B

9.B

10.C

11.B

12.C

13.A,B,C,D

14.C

15.3

16.A

17.B

18.D