

EPT-TEST-30(DBMS)

Duration :-45 mins

No of questions :- 18

I

In ER model weak entity meet which of the following conditions

S1. Weak entity is existence dependent i.e weak entity does not exist without the key with which it has its relationship

S2. Weak entity has primary key that has partially or totally derived from parent key in the relationship

Select your answer

A S1 and S2 both are correct

B S1 is correct

C S2 is correct

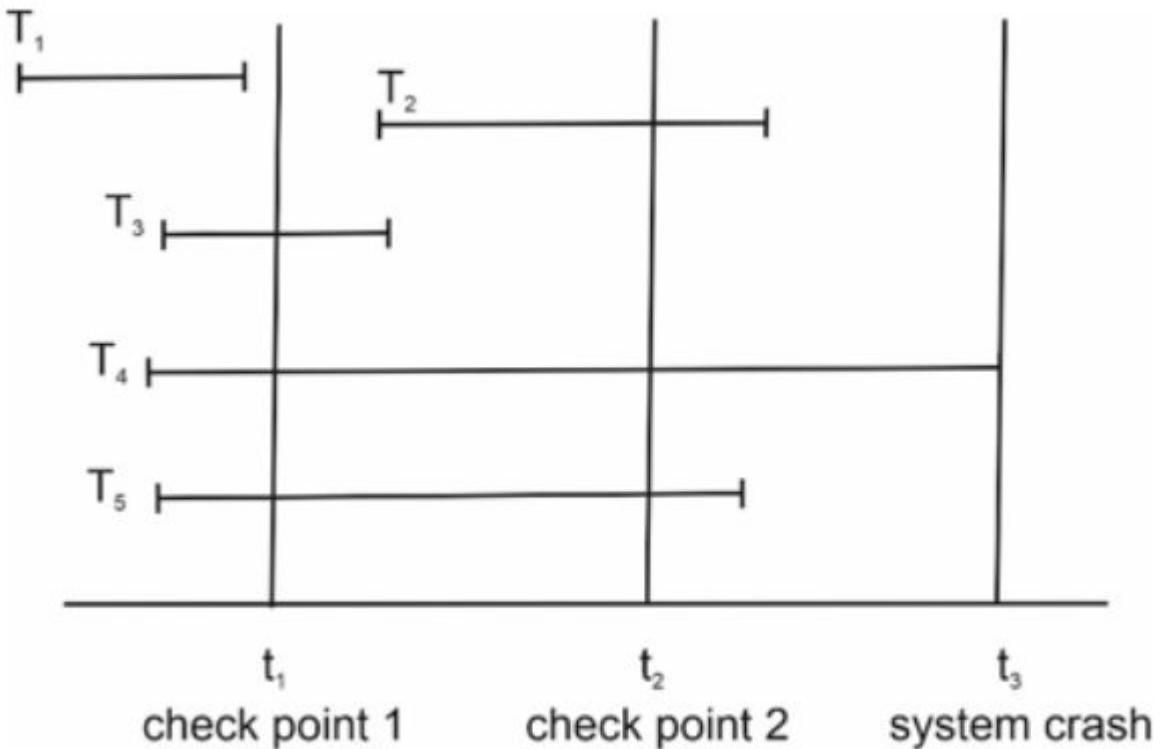
D none of the above

Marks: - +1

Level: - Easy

**2**

Consider the following transaction diagram:



Marks: - +I  
Level: -  
Easy

What will be the crash recovery in the following multiuser environment?

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Select your answer

A Redo T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>5</sub>  
Undo T<sub>4</sub>

B Undo T<sub>4</sub>  
Redo T<sub>2</sub>, T<sub>5</sub>

C Redo T<sub>1</sub>, T<sub>3</sub>  
Undo T<sub>2</sub>, T<sub>4</sub>, T<sub>5</sub>

D Redo T<sub>4</sub>  
Undo T<sub>2</sub>, T<sub>5</sub>

3

Let us consider the following three statements for schedule  $S_1$  and  $S_2$ :

Statement 1: If  $S_1$  and  $S_2$  are conflict equal schedules then  $S_1$  and  $S_2$  will always be view equal.

Statement 2: If  $S_1$  and  $S_2$  are view equal then they will always be conflict equal.

Statement 3: If  $S_1$  and  $S_2$  are not conflict equal then they can never be view equal.

Which one of the following is true?

Select your answer

A

All the statements are correct

B

Statement 1 and 2 are correct but statement 3 is incorrect.

C

Only statement 1 is correct.

D

None of the statement is correct.

Marks: - +2  
Level: -  
Moderate

**4**

Consider a database file which is divided into blocks and each block is having 'n' records. If single level index is made on the database file, then which among the following statements are incorrect.

Select one or more answers

- A For a Database file, dense index can only be built over unordered field.
- B For a Database file, sparse index can only be built over ordered field.
- C In dense Index, for each record of database file there exist entry in index file.
- D In sparse index, for each record of database file there exist entry in index file.

**Marks: - +2**  
**Level: -**  
**Moderate**

5

For a database file, which among the following is true about clustering index.

**Marks:** - +2  
**Level:** -  
**Moderate**

Select your answer

- A Records are ordered based on primary key field (X) and field (X) is used for indexing.
- B Records are ordered based on primary key field (X) and unordered filed (Y) is used for indexing.
- C Records are ordered based on non key field(X) and field (X) is used for indexing.
- D Records are ordered based on non key field(X) and key field (Y) is used for indexing.

6

Order P of a B<sup>+</sup> Tree is the maximum child pointers it can have. Suppose a node can store keys of size 10 bytes each, record pointer length is 8 Bytes and block pointer size is 8 Bytes.

If the Block size is 1 KB, which one among the following can be the order of B<sup>+</sup> Tree node?

Select your answer

A 57

B 58

C 39

D 40

Marks: - +2  
Level: -  
Moderate

7

Consider a schedule 'S', having 'n' transactions. Suppose every transaction can apply shared lock to read a data item and exclusive lock to read/write a data item. If shared lock is applied on a data item, then transaction can unlock it, but if exclusive lock is applied the transaction cannot unlock it and data item will be freely available only after the transaction commit.

Based on the following information, which among the following is incorrect?

Select your answer

A

Schedule S will be recoverable.

B

There will be no cascading rollbacks in S.

C

Schedule S will always be conflict serializable.

D

Schedule S will be free from Deadlock and Starvation.

Marks: - +1  
Level: - Easy

8

SELECT clause in SQL corresponds to which relational Algebra operator?

Select your answer

A Projection ( $\pi$ )

B Selection ( $\sigma$ )

C Rename ( $\rho$ )

D Cross product ( $\times$ )

Marks: - +2  
Level: -  
Moderate

9

Out of the following relational operators identify which one are basic operators?

Select one or more answers

A Union ( $\cup$ )

B Division (/)

C Intersection ( $\cap$ )

D Cross product (X)

Marks: - +2

Level: -

Moderate

Consider a relation R with '100' distinct records and relation S with '0' records, then what can be the maximum number of records in  $R \div S$  \_\_\_\_\_?

**Marks:** - +2  
**Level:** -  
**Moderate**

Enter your answer below

Type your answer here....

**II**

Consider a table 'STUDENT' below:

Name	STUDENT_Roll	Branch
Mahesh	101	CSE
Mahesh	102	ME

The relation 'STUDENT' is decomposed into two relations STUDENT\_Name and STUDENT\_Branch.

STUDENT\_Name:

Name	STUDENT_Roll
Mahesh	101
Mahesh	102

STUDENT\_Branch:

STUDENT_Roll	Branch
101	CSE
102	ME

**Marks: - +2**  
**Level: -**  
**Moderate**

Identify the correct statement for given decomposition.

Select your answer

A

Lossy and not dependency preserving.

B

Lossy and dependency preserving.

C

Lossless and dependency preserving.

D

Lossless and not dependency preserving.

Don't think answer is B

**I2**

Given two tables 'Student' and 'Enroll'.

**Student: -**

<b>S_id</b>	<b>S_name</b>	<b>DOB</b>
S <sub>1</sub>	A	24
S <sub>2</sub>	A	27
S <sub>3</sub>	B	27
S <sub>4</sub>	C	24

**Enroll: -**

<b>S_id</b>	<b>C_id</b>	<b>Fee</b>
S <sub>1</sub>	C <sub>1</sub>	200
S <sub>1</sub>	C <sub>2</sub>	700
S <sub>3</sub>	C <sub>2</sub>	200
S <sub>4</sub>	C <sub>3</sub>	400

S1: - S\_id is a foreign key for relation enroll which is referencing to candidate key (S\_id) of relation student.

S2: - S\_id is a foreign key for relation student which is referencing to candidate key (S\_id) of relation Enroll.

Which of the following is true?

**Marks: - +1**  
**Level: - EASY**

Select your answer

A Both  $S_1$  and  $S_2$  are true

B Both  $S_1$  and  $S_2$  are false

C Only  $S_1$  is true

D Only  $S_2$  is true.

I3

Which of the following statement is True regarding domain constraints?

Select your answer

- A A relational table may have a valid set of values for an attribute.
- B A relational table must have a valid set of values for an attribute.
- C A relational table may not have a valid set of values for an attribute
- D A relational table may have any set of values for an attribute

Marks: - +2  
Level: -  
Moderate

I4

In a B+ tree, if the search-key value is 16 bytes long, the block size is  $2^{13}$  bytes and the block pointer is 4 bytes, then the maximum order of the B+ tree is:

Select your answer

A 409

B 407

C 410

D 408

Marks: - +2  
Level: -  
Moderate

I5

Rigorous 2-PL ensures that our schedule is/are:

Select your answer

A Recoverable

B Cascadeless

C Both

D None

Marks: - +2  
Level: -  
Moderate

I6

Which of the following may occur in the 2-PL protocol?

- 1. Starvation
- 2. Deadlock
- 3. Cascading rollback
- 4. Serializability

Marks: - +2  
Level: -  
**Moderate**

Select your answer

A 1 and 2

B 2 only

C 2 and 3

D 1, 2, and 3

I7

Which of the following about the Lock Based Protocol is/are TRUE?

Select one or more answers

- A Deadlock is never possible if a schedule uses strict-2 phase locking protocol.
- B Both deadlock and starvation are possible in Basic 2PL
- C Cascading Roll back is possible in Basic Time stamp protocol
- D Schedules which are allowed by Thomas write rule are always view serializable

Marks: - +2  
Level: -  
Moderate

I8

Which of the following are true regarding the number of accesses required without index file in Primary Index, secondary Index and clustering Index.  
(Where B is the number of blocks in the datafile)

Marks: - +1  
Level: - EASY

Select your answer

A

$$\log_2 B, \frac{1+B}{2}, \frac{B+1}{2}$$

B

$$\log_2 B + 1, \log_2 B + 1, \geq \log_2 B + 1$$

C

$$\log_2 B + 1, \log_2 B, \frac{B+1}{2}$$

D

$$\log_2 B, \frac{1+B}{2}, \log_2 B + 1$$

## **Answers**

**1.A**

**2.B**

**3.C**

**4.A,C**

**5.C**

**6.A**

**7.D**

**8.A**

**9.A,D**

**10.100**

**11.C**

**12.C**

**13.2**

**14.410**

**15.C**

**16.D**

**17.B,C,D**

**18.A**