Started on	Thursday, March 24, 2022, 10:50 PM
State	Finished
Completed on	Thursday, March 24, 2022, 10:52 PM
Time taken	1 min 41 secs
Grade	**10.75** out of 12.00 (**90**%)

Question **1**

Correct

1.00 points out of 1.00

The following decomposition of relation R into relations R1 and R2 is a lossless-join decomposition.

R

A	B	C
4	5	4
5	7	6
6	6	6

R1

A	C
4	4
5	6
6	6

R2

B	C
5	4
7	6
6	6

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **2**

Correct

1.00 points out of 1.00

A relation schema R is defined using a set of functional dependencies F. R is then decomposed into multiple relations using BCNF. The redundancy in terms of functional dependencies existing in the decomposed set of relations is _____.

Select one:

- a. More than the closure of F
- b. Less than the closure of F
- c. Zero ✔
- d. Same as the closure of F

The correct answer is:
Zero

Question **3**

Correct

1.00 points out of 1.00

A relation R(A, B, C, D, E) has the following functional dependencies:

A→C , B→D , (A, B)→E

If (A , B) is key, then this table is in _____.

Select one:

a.
None

b.
1 NF

✔

c.
3 NF

d.
2 NF

The correct answer is:
1 NF

Question **4**

Partially correct

0.75 points out of 1.00

Which among the following should be supported by a good decomposition scheme? Select all applicable.

Select one or more:

a.
Remove redundant functional dependency

✔

b.
Lossless-join decomposition

✔

c.
Dependency Preservation

✔

d.
Remove extraneous attributes

The correct answers are:
Lossless-join decomposition

,
Dependency Preservation

,
Remove extraneous attributes

,
Remove redundant functional dependency

Question **5**

Correct

1.00 points out of 1.00

Which of the following statements is TRUE?

Select one:

a.
Lossless-join and dependency-preserving is not always possible in 3 NF decomposition

b.
Lossless-join and dependency-preserving is always possible in 3 NF decomposition

c.
3 NF is stricter than BCNF

d.
If a relation has only two attributes, then it is always in BCNF

✔

The correct answer is:
If a relation has only two attributes, then it is always in BCNF

Question **6**

Correct

1.00 points out of 1.00

A relation R(A, B, C, D) is decomposed into the following relations using BCNF. Which among these preserve dependencies and also gives a lossless join?

Select one:

a.
AC→D, B→C

b.
A→C, B→CD

c.
A→B, B→CD

✔

d.
AB→C, C→AD

The correct answer is:
A→B, B→CD

Question **7**

Correct

1.00 points out of 1.00

Let the relation schema R (A_1 A_2, A_3, A_4) be defined with these functional dependencies:

$$A_1 \rightarrow A_2\,,\ A_2 \rightarrow A_3\,,\ A_4 \rightarrow A_2$$

R is decomposed into the following relations:

$$(A_1, A_2)\ ,\ (A_2, A_3)\ ,\ (A_2, A_4)$$

Which among the following is TRUE with respect to decomposed relations?

Select one:

- a. Preserves dependency and gives lossless join ✔
- b. Does not preserve dependency and will not give lossless join
- c. Preserve dependency and may not give lossless join
- d. May preserve dependency and gives lossless join

The correct answer is:
Preserves dependency and gives lossless join

Question **8**

Correct

1.00 points out of 1.00

Decomposition of a relation R into R1 and R2 is a lossless decomposition if _____ is in F^+.

Select one:

- a. R1 ∩ R2 → R
- b. R1 ∩ R2 → R2 ✔
- c. R ∩ R2 → R1
- d. R1 ∩ R → R2

The correct answer is:
R1 ∩ R2 → R2

Question **9**

Correct

1.00 points out of 1.00

The _____ normal form requires that all the composite attributes be converted to individual attributes.

Select one:

a.
Third

b.
First

✔

c.
Second

d.
BCNF

The correct answer is:
First

Question **10**

Correct

1.00 points out of 1.00

Let a relation R be decomposed into relations R1, R2, R3 ... Rn. The decomposition is lossless if :

Select one:

a.
$R \subseteq R1 \bowtie R2 \bowtie R3 .... \bowtie Rn$

b.
$R \neq R1 \bowtie R2 \bowtie R3 .... \bowtie Rn$

c.
$R \subset R1 \bowtie R2 \bowtie R3 .... \bowtie Rn$

d.
$R = R1 \bowtie R2 \bowtie R3 .... \bowtie Rn$

✔

The correct answer is:
$R = R1 \bowtie R2 \bowtie R3 .... \bowtie Rn$

Question **11**

Incorrect

0.00 points out of 1.00

In the _____ normal form, every non-key attribute is functionally dependent on the primary key.

Select one:

- a. Second Normal Form ✖
- b. First Normal Form
- c. Third Normal Form
- d. None of the above

The correct answer is:
Third Normal Form

Question **12**

Correct

1.00 points out of 1.00

Functional Dependency is a constraint that is based on _____.

Select one:

- a. Normal form
- b. Decomposition
- c. Closure
- d. Key ✔

The correct answer is:
Key

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