

M.S. Ramaiah Institute of Technology
(Autonomous Institute, Affiliated to VTU)
Department of Computer Science and Engineering

Course Name: Database Systems

Course Code: CS52

Credits: 3:1:0

UNIT 4

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Faculty:
Dr. Sini Anna Alex

Question 2

Which normal form is based on the concept of 'full functional dependency' is

- A** First Normal Form
- B** Second Normal Form
- C** Third Normal Form
- D** Third Normal Form

Ans:B

Question 3

Consider the following dependencies and the BOOK table in a relational database design. Determine the normal form of the given relation.

ISBN \rightarrow Title

ISBN \rightarrow Publisher

Publisher \rightarrow Address

Ans:B

- A** First Normal Form
- B** Second Normal Form
- C** Third Normal Form
- D** BCNF

Question 4

For a database relation $R(a, b, c, d)$ where the domains of a, b, c and d include only atomic values, and only the following functional dependencies and those that can be inferred from them hold :

$$a \rightarrow c$$

$$b \rightarrow d$$

The relation is in

Ans:A

- A** First normal form but not in second normal form
- B** Second normal form but not in third normal form
- C** Third normal form
- D** BCNF



Question 7

The primary key is selected from the: _____

A

Composite keys

B

Determinants

C

Candidate keys

D

Foreign keys

Ans:C

Question 8

Which one of the following statements about normal forms is FALSE?

Answer: B

It is not always possible to decompose a table in BCNF and preserve dependencies. For example, a set of functional dependencies $\{AB \rightarrow C, C \rightarrow B\}$ cannot be decomposed in BCNF.

- A** BCNF is stricter than 3NF
- B** Lossless, dependency preserving decomposition into BCNF is always possible
- C** Lossless, dependency preserving decomposition into 3NF is always possible
- D** Any relation with two attributes is BCNF

Relation R has eight attributes ABCDEFGH. Fields of R contain only atomic values. $F = \{CH \rightarrow G, A \rightarrow BC, B \rightarrow CFH, E \rightarrow A, F \rightarrow EG\}$ is a set of functional dependencies (FDs) so that F^+ is exactly the set of FDs that hold for R.

Q2. The relation R is

- (A) in 1NF, but not in 2NF.
- (B) in 2NF, but not in 3NF.
- (C) in 3NF, but not in BCNF.
- (D) in BCNF.

Ans:A

Consider schema $R=ABCD$, $D = \{R1= AB, R2= BC, R3= CD \}$ subjected to $F = \{ A \rightarrow B, B \rightarrow C, C \rightarrow D, D \rightarrow A \}$.

Test for non additive join
property



Question 16

The best normal form of relation scheme $R(A, B, C, D)$ along with the set of functional dependencies $F = \{AB \rightarrow C, AB \rightarrow D, C \rightarrow A, D \rightarrow B\}$ is _____

- A** Boyce-Codd Normal form
- B** Third Normal form
- C** Second Normal form
- D** First Normal form



Question 17

Decomposition help in eliminating some of the problems of bad design

A

Redundancy

B

Inconsistencies

C

Anomalies

D

All of the above

Ans:D

Thank you