CS354:All Polls

- `22nd Sep`

1. A relation $r < A, B, C >$ has C as candidate key and $A \rightarrow B$ holds. Which of the following(s) is/are true?
   - A The relation is in 2NF
   - B The relation is in 3NF
   - C The relation is neither 2NF nor 3NF
   - D none of the above
2. If $r < A, B, C >$ has C as candidate key and $A \rightarrow B$ holds then the decomposition $r1 < A, B >$ and $r2 < B, C >$ are
   - A lossy
   - B lossless
   - C dependency preserving
   - D not dependency preserving
3. Which of the following(s) is/are valid statement(s)?
   - A 3NF is stricter than BCNF
   - B BCNF is stricter than 3NF
   - C Among 3NF and BCNF, which one is stricter, it cannot be deterministically concluded
   - D stricter property depends on the context of use

- `21st Sep`

1. Prime attribute is
   - A part of a primary key only
   - B part of a candidate key(s) only
   - C part of a foreign key only
   - D none of the above
2. For 2NF check, followings are important
   - A identifying candidate keys
   - B identifying prime and non-prime attributes
   - C identifying partial dependency
   - D none of the above
3. 3NF is a stricter than 2NF
   - A false
   - B true sometimes
   - C true always
   - D none of the above

- `17th Sep`

1. If only $A \rightarrow BC$ is given then which of the following(s) cannot be deterministically derived
   - A $A \rightarrow B$
   - B $A \rightarrow C$
   - C $AB \rightarrow C$ This can be derived so it will not be a correct option
   - D $AC \rightarrow D$
   - E None of the above
2. In a relational schema R with attributes A, B and C; if $A \rightarrow C$ is given then which of the following(s) can be deterministically derived
   - A $AC \rightarrow B$
   - B $AB \rightarrow C$
   - C $C \rightarrow A$
   - D none of the above

3. Two functional dependency sets F1 and F2 are equivalent
   A only if $F1$ is same as $F2$ or vice versa
   B if $F1^+$ is same as $F2^+$ or vice versa
   C if $F1$'s canonical cover is same as $F2$'s canonical cover
   D none of the above

- `15th Sep`

1. Which of the following(s) is/are true statement(s)?
   A Candidate keys and super keys are same
   B all candidate keys are super keys
   C all super keys are candidate keys
   D None of the above
2. A functional dependency (FD) $AB \rightarrow B$ is an example of
   A Armstrong's reflexivity axiom
   B Armstrong's augmentation axiom
   C Armstrong's transitivity axiom
   D none of the above
3. Which of the followings is/are true?
   A if $XY \rightarrow Z$ holds then $X \rightarrow Z$ also holds
   B if $X \rightarrow Z$ holds then $XY \rightarrow Z$ also holds
   C if $X \rightarrow YZ$ holds then $X \rightarrow Y$ also holds
   D none of the above

- `14th Sep`

1. Which of the following(s) is/are true statement(s)?
   A Decomposition is a way to remove redundancy completely
   B Decomposition can help in reducing redundancy
   C Decomposition can not help in removing redundancy
   D None of the above
2. Lossy decomposition means
   A if the decomposed components are joined back (natural join) then the original relation can be obtained
   B if the decomposed components are joined back (natural join) then the joined relation will always contain a subset of elements of the original relation
   C if the decomposed components are joined back (natural join) then the joined relation will contain a different set of elements than the original relation
   D none of the above
3. Which of the followings is/are true?
   A functional dependency and key concepts are exactly same
   B functional dependency is a generalization of a key concept
   C functional dependency means the value for a certain set of attributes, determines uniquely the value for another set of attributes
   D none of the above

- `10th Sep`

1. The domain of a formula P includes
   A only the values of tuples of the relations referred in P
   B only the constant values referred in P
   C both the values of tuples of the relations referred in P and the constant values referred in P
   D neither the values of tuples of the relations referred in P and the constant values referred in P
   E don't know
2. Consider our bank example, the DRC expression $\{< c > | \exists l(< c, l > \in borrower) \vee \exists a(< c, a > \in depositor)\}$ will provide
   customer names who have taken either loans or have accounts or both

3. In terms of expressive power, which of the followings are false?
   A Basic relational algebra and TRC
   B Basic relational algebra and DRC
   C Extended relational algebra and TRC
   D Extended relational algebra and DRC
   E don't know

- `8th Sep`

1. If $P(x)$ means x is less than 10 then which of the followings are true
   A $P(x)$
   B P(3)
   C P(10)
   D $\exists x P(x)$
   E Don't know
2. If $S(x)$ represents x is a student in the class and $D(x)$ represents x visited Delhi, then $\exists x(S(x) \rightarrow D(x))$ would be false for which of the following cases
   A in the class, there exists a non-student who has not visited Delhi
   B in the class, there exists a non-student who has visited Delhi
   C in the class, there is a student who has not visited Delhi
   D in the class, there is a student who has visited Delhi
   E Don't know
3. In a Tuple Relational Calculus (TRC), the general representation is t — P(t), where t is a tuple variable and P(t) is a vaild predicate formula. In the final result, the attributes that will be available, are determined by
   A all the attributes used in building P(t)
   B the attributes which are referred with t
   C if no attributes are referred with t then all the attributes of the relation that is associated with t
   D Don't know

- `7th Sep`

1. In the result of r Anti-join s, the number of attributes will be
   A same as r
   B same as s
   C same as $r \bowtie s$
   D Don't know
2. If a relation (say r) has an attribute (say A1) which is referred by an attribute (say A2) of another relation (say s) using referential integrity (or foreign key) constraint then to delete a tuple from s, does it require to delete also from r?
   A Yes always
   B Not always
   C Don't know
3. If an arithmetic operation is to be used in the projection operation then the generalized projection is a preferred option.
   A False
   B True
   C Don't know

- `3rd Sep`

1. In $r \div s$ operation, if $R = S$ then it will return
   A result based on the tuples present in r
   B result based on tuples present in s
   C empty result
   D Don't know
2. $r \bowtie r$

A is not a correct relational algebra expression
B is empty
C is r itself
D Don't know

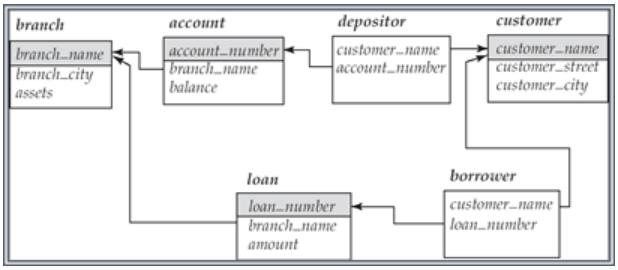
3. If $r \div s$ is substituted by $r \bowtie s$ then
   A the result will be same always
   B the result will not be same always
   C the result will be different always
   D Don't know

- `1st Sep`

1. There are no differences between Natural Join and Theta join operations.
   A True
   B False
   C Don't know
2. For duplicate elimination, null is treated like any other value in SQL.
   A True
   B False
   C Don't know
3. Division operation between r and s will work provided
   A R is a subset of S
   B S is a subset of R
   C Don't know

- `31st Aug`

1. To join two relations, Cartesian Product is commonly used operator.
   A True
   B False



2. What the following relational algebra expression will return?
   $\pi_{cust\_name}((borrower) \cup \pi_{cust\_name,account\_no}((depositor))$

   Not a valid relational algebra expression
3. What the following relational algebra expression will return?
   $\pi_{loan\_no,balance}(\sigma_{branch\_name='IITP'}(loan))$

   From the loan relation, it will try to find the loan_no and balance for branch_name='IITP'. But as the balance is not present in loan so the given expression is not correct

- `27th Aug`

1. Let's consider two entities *Products* and *Buyers*. *Products* entity set has *Product_ID* as the key attribute. It has no other non-key attribute. Whereas the entity set *Buyers* has *Buyer_ID* as key attribute and *Addr* as non-key attribute. *Products* and *Buyers* are associated using an *One to Many Purchase* relationship. In such situation, *Product* should be represented as
   A Entity

B Attribute of Buyers

C Don't know

2. Two entity sets can be associated with each other using multiple relationships.

A True

B False

C Don't know

3. Weak entity set and identifying relationship can not be combined as a single relation or table.

A True

B False

C Don't know