**Question 1**

1. For most business database design purposes, \_\_\_\_\_\_\_\_ is as high as you  
   need to go in the normalization process.

|  |  |  |
| --- | --- | --- |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |
|  |  | 5NF |

2 points   page 191

**Question 2**

1. A table that displays data redundancies yields \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | anomalies |
|  |  | fewer attributes |
|  |  | more entities |
|  |  | inconsistencies |

2 points   page 194

**Question 3**

1. The normalization process involves assigning \_\_\_\_\_\_\_\_ to tables based  
   on the concept of determination.

|  |  |  |
| --- | --- | --- |
|  |  | data |
|  |  | attributes |
|  |  | files |
|  |  | relations |

2 points   page 191

**Question 4**

1. From a structural point of view, 2NF is better than \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 3NF |
|  |  | 4NF |
|  |  | BCNF |

2 points   page 191

**Question 5**

1. \_\_\_\_\_\_\_\_ yields increase performance in a database system.

|  |  |  |
| --- | --- | --- |
|  |  | Compression |
|  |  | Atomization |
|  |  | Normalization |
|  |  | Denormalization |

2 points   page 191

**Question 6**

1. Data redundancy produces \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | robust design |
|  |  | data integrity problems |
|  |  | efficient storage use |
|  |  | slower lookups |

2 points   page 195

**Question 7**

1. In a normalized database, what is represented by each table?

|  |  |  |
| --- | --- | --- |
|  |  | an entire application |
|  |  | a single subject |
|  |  | a functional area |
|  |  | one attribute |

2 points   page 195

**Question 8**

1. Identification of the \_\_\_\_\_\_\_\_ will let you know where you are in the   
   normalization process.

|  |  |  |
| --- | --- | --- |
|  |  | primary key |
|  |  | repeating groups |
|  |  | attributes |
|  |  | normal form |

2 points   page 191

**Question 9**

1. A table that has all key attributes defined, no repeating groups,   
   and an identified primary key is said to be in \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |

2 points   page 195

**Question 10**

1. The \_\_\_\_\_\_\_\_ model views the data as part of a table or collection   
   of tables in which all key values must be identified.

|  |  |  |
| --- | --- | --- |
|  |  | relational |
|  |  | object-oriented |
|  |  | conceptual |
|  |  | external |

2 points   page 197

**Question 11**

1. Which of the following normal forms is mostly of theoretical  
   interest?

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 3NF |
|  |  | BCNF |
|  |  | DKNF |

2 points   page 195-196

**Question 12**

1. A table is in fourth normal form (4NF) if \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | no column contains the same values |
|  |  | it is in 3NF and has no independent multivalued dependencies |
|  |  | it is in 3NF and there are no repeating groups |
|  |  | all attributes are dependent on the primary key |

2 points   page 213

**Question 13**

1. A table that is in 1NF and includes no partial dependencies   
   is said to be in \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |

2 points   page 201

**Question 14**

1. A table that is in 2NF and contains no transitive dependencies  
   is said to be in \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |

2 points   page 203

**Question 15**

1. Dependencies can be depicted with the help of a dependency \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | schema |
|  |  | database |
|  |  | form |
|  |  | diagram |

2 points   page 198

**Question 16**

1. Dependencies based on only a part of a composite primary key are   
   called \_\_\_\_\_\_\_\_ dependencies.

|  |  |  |
| --- | --- | --- |
|  |  | incomplete |
|  |  | primary |
|  |  | composite |
|  |  | partial |

2 points   page 198

**Question 17**

1. Assume you have the following table definition: 1NF  
   (PROJ\_NUM, EMP\_NUM, PROJ\_NAME, EMP\_NAME, JOB\_CLASS,  
   CHG\_HOURS, HOURS). Identify a transitive dependency.  
   Identify a transitive dependency.

|  |  |  |
| --- | --- | --- |
|  |  | PROJ\_NUM --> PROJ\_NAME |
|  |  | EMP\_NUM --> EMP\_NAME, JOB\_CLASS, CHG\_HOURS |
|  |  | PROJ\_NUM, EMP\_NUM --> PROJ\_NAME, EMP\_NAME, JOB\_CLASS, CHG\_HOURS |
|  |  | JOB\_CLASS --> CHG\_HOURS |

2 points   page 198-199

**Question 18**

1. An attribute that is part of a key is known as a(n)   
   \_\_\_\_\_\_\_\_ attribute.

|  |  |  |
| --- | --- | --- |
|  |  | entity |
|  |  | nonprime |
|  |  | important |
|  |  | prime |

2 points   page 191

**Question 19**

1. All relational tables satisfy the \_\_\_\_\_\_\_\_ requirements.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | BCNF |
|  |  | 3NF |

2 points   page 198-199

**Question 20**

1. A(n) \_\_\_\_\_\_\_\_ attribute is not part of a key.

|  |  |  |
| --- | --- | --- |
|  |  | nonprime |
|  |  | composite |
|  |  | prime |
|  |  | assigned |

2 points   page 191

**Question 21**

1. Another name for a prime attribute is a(n) \_\_\_\_\_\_\_\_ attribute.

|  |  |  |
| --- | --- | --- |
|  |  | index |
|  |  | key |
|  |  | surrogate |
|  |  | view |

2 points   page 191

**Question 22**

1. Given the following table definition, how many tables would be  
   produced by the conversion to 2NF? 1NF   
   (PROJ\_NUM, EMP\_NUM, PROJ\_NAME, EMP\_NAME, JOB\_CLASS,  
   CHG\_HOURS, ASSIGN\_HOURS)  
   with PROJ\_NUM & EMP\_NUM AS PRIMARY KEY IDENTIFIERS

|  |  |  |
| --- | --- | --- |
|  |  | one |
|  |  | two |
|  |  | three |
|  |  | four |

2 points   page 200

**Question 23**

1. A table whose primary key consists of only a single attribute is  
   automatically in \_\_\_\_\_\_\_\_ when it is in 1NF.

|  |  |  |
| --- | --- | --- |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |
|  |  | BCNF |

2 points   page 200

**Question 24**

1. A 2NF table can exhibit \_\_\_\_\_\_\_\_ dependency.

|  |  |  |
| --- | --- | --- |
|  |  | transitive |
|  |  | indirect |
|  |  | partial |
|  |  | complete |

2 points   page 200

**Question 25**

1. A \_\_\_\_\_\_\_\_ is any attribute whose value determines other  
   values within a row.

|  |  |  |
| --- | --- | --- |
|  |  | transitive dependency |
|  |  | secondary key |
|  |  | determinant |
|  |  | partial dependency |

2 points   page 201

**Question 26**

1. A table in \_\_\_\_\_\_\_\_ contains no transitive dependencies.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | none of these |

2 points   page 203

**Question 27**

1. A \_\_\_\_\_\_\_\_ key is an artificial PK introduced by the designer   
   with the purpose of simplifying the assignment of primary keys to  
   tables.

|  |  |  |
| --- | --- | --- |
|  |  | composite |
|  |  | candidate |
|  |  | foreign |
|  |  | surrogate |

2 points   page 204

**Question 28**

1. \_\_\_\_\_\_\_\_ keys are usually numeric, they are often automatically   
   generated by the DBMS, they are free of semantic content (they have  
   no special meaning), and they are usually hidden from the end users.

|  |  |  |
| --- | --- | --- |
|  |  | Composite |
|  |  | Surrogate |
|  |  | Foreign |
|  |  | Candidate |

2 points   page 204

**Question 29**

1. Improving \_\_\_\_\_\_\_\_ leads to more flexible queries.

|  |  |  |
| --- | --- | --- |
|  |  | normalization |
|  |  | derived attributes |
|  |  | atomicity |
|  |  | denormalization |

2 points   page 204

**Question 30**

1. Which of the following would be the best name for a column   
   representing the charges per hour in a table named JOB?

|  |  |  |
| --- | --- | --- |
|  |  | CHARGES\_PER\_HOUR |
|  |  | CHARGES\_PER\_HOUR\_FOR\_JOB |
|  |  | JOB\_CHG\_HOUR |
|  |  | CHG\_HR |

2 points   page 204

**Question 31**

1. In an ideal (database design) world, the level of desired granularity  
   is determined at the \_\_\_\_\_\_\_\_ design or at the requirements gathering  
   phase.

|  |  |  |
| --- | --- | --- |
|  |  | data |
|  |  | conceptual |
|  |  | external |
|  |  | functional |

2 points   page 205

**Question 32**

1. Storing a(n) \_\_\_\_\_\_\_\_ attribute in a table makes it easy to write the   
   application software to produce the desired results.

|  |  |  |
| --- | --- | --- |
|  |  | duplicate |
|  |  | derived |
|  |  | redundant |
|  |  | incomplete |

2 points   page 205

**Question 33**

1. \_\_\_\_ refers to the level of detail represented by the values stored  
   in a table's row.

|  |  |  |
| --- | --- | --- |
|  |  | Granularity |
|  |  | Atomicity |
|  |  | Depth |
|  |  | Duplication |

2 points   page 204

**Question 34**

1. A \_\_\_\_\_\_\_\_ key makes it more difficult to write search routines.

|  |  |  |
| --- | --- | --- |
|  |  | foreign |
|  |  | primary |
|  |  | composite primary |
|  |  | surrogate |

2 points   page 207

**Question 35**

1. To implement a surrogate key, MS Access uses an AutoNumber data type,  
   MS SQL Server uses an identity column, and Oracle uses a(n) \_\_\_\_\_\_\_\_   
   object.

|  |  |  |
| --- | --- | --- |
|  |  | auto increment |
|  |  | sequence |
|  |  | generator |
|  |  | keygen |

2 points   page 208

**Question 36**

1. In a real-world environment, we must strike a balance between design   
   integrity and \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | anomalies |
|  |  | robustness |
|  |  | flexibility |
|  |  | uniqueness |

2 points   page 208

**Question 37**

1. Assume you have the following table:  
   Assume you have the following table:  
   |JOB\_CODE | JOB\_DESCRIPTION | JOB\_CHG\_HOUR |  
   | 511 | Programmer | $35.75 |  
   | 512 | Programmer | $35.75 |  
     
   How might you eliminate the possibility of duplicate   
   entries for JOB\_DESCRIPTION?

|  |  |  |
| --- | --- | --- |
|  |  | there is no way to eliminate the duplication |
|  |  | create a foreign key on JOB\_CODE |
|  |  | use a unique index for JOB\_DESCRIPTION |
|  |  | create a surrogate key for the table |

2 points   page 208

**Question 38**

1. Most designers consider Boyce-Codd normal form (BCNF) as a   
   special case of \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |

2 points

**Question 39**

1. Tables in \_\_\_\_\_\_\_\_ will perform suitably in business transactional  
   databases.

|  |  |  |
| --- | --- | --- |
|  |  | 0NF |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |

2 points   page 208

**Question 40**

1. A table where every determinant is a candidate key is said to   
   be in \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |
|  |  | BCNF |

2 points

**Question 41**

1. When a table contains only one \_\_\_\_\_\_\_\_ key, the 3NF and the   
   BCNF are equivalent.

|  |  |  |
| --- | --- | --- |
|  |  | candidate |
|  |  | foreign |
|  |  | surrogate |
|  |  | primary |

2 points   page 208

**Question 42**

1. Assume the following table definition and dependencies. In   
   which normal form is this table?  
   TABLE(A, B, C, D)   
   A + B --> C, D  
   C --> B

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | BCNF |

2 points   page 209

**Question 43**

1. BCNF can be violated only if the table contains more than   
   one \_\_\_\_\_\_\_\_ key.

|  |  |  |
| --- | --- | --- |
|  |  | foreign |
|  |  | primary |
|  |  | candidate |
|  |  | secondary |

2 points

**Question 44**

1. In BCNF, every \_\_\_\_\_\_\_\_ in a table is a candidate key.

|  |  |  |
| --- | --- | --- |
|  |  | entity |
|  |  | atomic attribute |
|  |  | primary key |
|  |  | determinant |

2 points   page 209

**Question 45**

1. Assume the following table definition and dependencies.   
   How many tables would be produced by converting to BCNF?  
   TABLE(STU\_ID, STAFF\_ID, CLASS\_CODE, ENROLL\_GRADE)  
   STU\_ID + STAFF\_ID --> CLASS\_CODE, ENROLL\_GRADE  
   CLASS\_CODE --> STAFF\_ID

|  |  |  |
| --- | --- | --- |
|  |  | one |
|  |  | two |
|  |  | three |
|  |  | four |

2 points   page 211

**Question 46**

1. When designing a database you should \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | only normalize the database when performance problems occur |
|  |  | consider more important issues such as performance before normalizing |
|  |  | create table structures then normalize the database |
|  |  | make sure entities are in normal form before table structures are  created |

2 points   page 213

**Question 47**

1. A table where all attributes are dependent on the primary key   
   and are independent of each other, and no row contains two or  
   more multivalued facts about an entity, is said to be in \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | 1NF |
|  |  | 2NF |
|  |  | 3NF |
|  |  | 4NF |

2 points   page 212

**Question 48**

1. The conflicts between design efficiency, information requirements,  
   and performance are often resolved through \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | conversion from 2NF to 3NF |
|  |  | conversion from 3NF to 4NF |
|  |  | conversion from 1NF to 2NF |
|  |  | compromises that may include denormalization |

2 points page 219-200

**Question 49**

1. Lower normalization forms occur (and are even required) in  
   specialized databases known as \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | data warehouses |
|  |  | data dumps |
|  |  | operational databases |
|  |  | historical databases |

2 points   page 219-220

**Question 50**

1. Unnormalized tables yield no simple strategies for creating virtual  
   tables, which are also known as \_\_\_\_\_\_\_\_.

|  |  |  |
| --- | --- | --- |
|  |  | views |
|  |  | warehouses |
|  |  | sets |
|  |  | indexes |

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