1.	**(T or F) 1)All relations are tables, but not all tables are relations.**	TRUE Diff: 1 Page Ref: 96
2.	**(T or F) 2) A relation is a three-dimensional table.**	FALSE Diff: 2 Page Ref: 97-98 Fig 3-4
3.	**(T or F) 3) A characteristic of a relation is that the cells of the relation hold a single value.**	TRUE Diff: 1 Page Ref: 97-98 Fig 3-4
4.	**(T or F) 4) A characteristic of a relation is that the rows of a relation may hold identical values.**	FALSE Diff: 2 Page Ref: 97-98 Fig 3-4
5.	**(T or F) 5) The columns of a relation are sometimes called "tuples."**	FALSE Diff: 1 Page Ref: 98-99 Fig 3-9
6.	**(T or F) 6) A tuple is a group of one or more columns that uniquely identifies a row.**	FALSE Diff: 1 Page Ref: 98-98 Fig 3-9
7.	**(T or F) 7) Attribute Y is functionally dependent on attribute X if the value of attribute X determines the value of Y.**	TRUE Diff: 2 Page Ref: 100
8.	**(T or F) 8) The functional dependency noted as A → B means that the value of A can be determined from the value of B.**	FALSE Diff: 1 Page Ref: 100-101
9.	**(T or F) 9) In the functional dependency shown as A → B, B is the determinant.**	FALSE Diff: 2 Page Ref: 100
10.	**(T or F) 10) Functional dependencies can involve groups of attributes.**	TRUE Diff: 1 Page Ref: 100-101
11.	**(T or F) 11) A determinant of a functional dependency may or may not be unique in a relation.**	TRUE Diff: 2 Page Ref: 101-104
12.	**(T or F) 12) A row can be uniquely identified by a key.**	TRUE Diff: 1 Page Ref: 104
13.	**(T or F) 13) A key can be composed of a group of attributes taken together.**	TRUE Diff: 1 Page Ref: 104
14.	**(T or F) 14) It is possible to have a relation that does not have a key.**	FALSE Diff: 3 Page Ref: 104
15.	**(T or F) 15) A relation can have only one candidate key.**	FALSE Diff: 2 Page Ref: 104-105
16.	**(T or F) 16) Surrogate keys usually slow performance.**	FALSE Diff: 2 Page Ref: 105
17.	**(T or F) 17) Surrogate keys are normally not shown on forms or reports.**	TRUE Diff: 1 Page Ref: 105
18.	**(T or F) 18) A constraint that requires an instance of an entity to exist in one relation before it can be referenced in another relation is called an insertion anomaly.**	FALSE Diff: 3 Page Ref: 105-106
19.	**(T or F) 19) A referential integrity constraint limits the values of a foreign key.**	TRUE Diff: 2 Page Ref: 105-106
20.	**(T or F) 20) If a table meets the minimum definition of a relation, it has an effective or appropriate structure.**	FALSE Diff: 2 Page Ref: 107

21.	**(T or F) 21) Undesirable consequences of changing the data in a relation are called "modification anomalies."**	TRUE Diff: 2 Page Ref: 106-107
22.	**(T or F) 22) A deletion anomaly exists when deleting data about one entity results in the loss of data about another entity.**	TRUE Diff: 1 Page Ref: 106-107
23.	**(T or F) 23) Relations are classified into "normal forms" based on the types of modification anomalies that they are vulnerable to.**	TRUE Diff: 3 Page Ref: 107-108 Fig 3-12
24.	**(T or F) 24) Any table that meets the definition of a relation is in 2NF.**	FALSE Diff: 1 Page Ref: 107, 108
25.	**(T or F) 25) A relation is in Boyce-Codd Normal Form (BCNF) if every determinant is a candidate key.**	TRUE Diff: 2 Page Ref: 109
26.	**(T or F) 26) The essence of normalization is taking a relation that is not in BCNF and breaking it into multiple relations such that each one is in BCNF.**	TRUE Diff: 2 Page Ref: 110 Fig 3-13
27.	**(T or F) 27) Breaking a relation into two relations may create the need for a referential integrity constraint to be defined between the two relations.**	TRUE Diff: 2 Page Ref: 110 Fig 3-13
28.	**(T or F) 28) A multivalued dependency exists when a determinant is matched to a set of values.**	TRUE Diff: 3 Page Ref: 117
29.	**(T or F) 29) The multivalued dependency noted as A →→ B, means that the value of A determines a set of values of B.**	TRUE Diff: 1 Page Ref: 117
30.	**(T or F) 30) A relation is in 4NF when multivalued dependencies are isolated in their own relation.**	TRUE Diff: 2 Page Ref: 120
31.	**31) A relation _____.** **A) has rows containing data about an entity** **B) has columns containing data about attributes of the entity** **C) has cells that hold only a single value** **D) has no two identical rows** **E) All of the above.**	E Diff: 1 Page Ref: 96-98 Fig 3-4
32.	**32) In a relation _____.** **A) entities in a column vary as to kind** **B) the order of the columns is important** **C) the order of the rows is unimportant** **D) more than one column can use the same name** **E) All of the above.**	C Diff: 1 Page Ref: 96-98 Fig 3-4
33.	**33) A relation is also known as a(n) _____.** **A) table** **B) tuple** **C) relationship** **D) attribute** **E) field**	A Diff: 1 Page Ref: 98-99 Fig 3-9
34.	**34) A tuple is also known as a(n) _____.** **A) table** **B) relation** **C) row** **D) field** **E) file**	C Diff: 2 Page Ref: 98-99 Fig 3-9
35.	**35) An attribute is also known as a(n) _____.** **A) table** **B) relation** **C) row** **D) field** **E) file**	D Diff: 2 Page Ref: 98-99 Fig 3-9
36.	**36) Saying that two entities are functionally dependent means that _____.** **A) the entities are always connected by a mathematical equation** **B) for one of the entities, if we are given the value of that entity, we can determine the value of one other entity** **C) for both of the entities, if we are given the value of that entity, we can determine the value of one other entity** **D) the functional dependency will have to be removed through normalization** **E) All of the above.**	B Diff: 2 Page Ref: 100-101
37.	**37) Given the functional dependency A → (B, C), A is a(n) _____.** **A) independent variable** **B) dependent variable** **C) determinant** **D) composite determinant** **E) C and D**	C Diff: 2 Page Ref: 100-101
38.	**38) Given the functional dependency (A, B) → C, (A, B) is a(n) _____.** **A) independent variable** **B) dependent variable** **C) determinant** **D) composite determinant** **E) C and D**	E Diff: 3 Page Ref: 100-101

39. **39) Given the functional dependency (A, B) → C, then _____.**
A) A → B
B) A → C
C) B → A
D) B → C
E) None of the above is correct.
E
Diff: 2
Page Ref: 100-101

40. **40) Which of the following is true about the functional dependency A → (X, Y)?**
A) X is functionally dependent on A.
B) A determines Y.
C) A is a determinant.
D) X and Y are functionally dependent on A.
E) All of the above.
E
Diff: 3
Page Ref: 100-101

41. **41) Which of the following is true about the functional dependency (A, B) → (C, D)?**
A) A is the determinant of C.
B) A and B together are determined by C and D together.
C) A and B together determine D.
D) C and D together determine A.
E) A determines B.
C
Diff: 3
Page Ref: 100-101

42. **42) The only reason(s) for having relations is to _____.**
A) store instances of functional dependencies
B) store equation components
C) store equation results
D) B and C
E) A, B and C
A
Diff: 3
Page Ref: 101

43. **43) A combination of one or more columns used to identify particular rows in a relation is a(n) _____.**
A) record
B) field
C) key
D) tuple
E) dependency
C
Diff: 1
Page Ref: 104

44. **44) A combination of two or more columns used to identify particular rows in a relation is a(n) _____.**
A) record
B) field
C) composite key
D) foreign key
E) surrogate key
C
Diff: 1
Page Ref: 104

45. **45) A determinant that determines all the other columns in a relation is a(n) _____.**
A) record
B) field
C) foreign key
D) candidate key
E) surrogate key
D
Diff: 1
Page Ref: 104-105

46. **46) When designing a database, one of the candidate keys in a relation is selected as the _____.**
A) composite key
B) primary key
C) foreign key
D) surrogate key
E) dependency
B
Diff: 1
Page Ref: 105

47. **47) An artificial column added to a relation to serve as the primary key is a(n) _____.**
A) composite key
B) candidate key
C) foreign key
D) surrogate key
E) dependency
D
Diff: 1
Page Ref: 105

48. **48) A key consisting of one or more columns that is a primary key in another relation is a(n) _____.**
A) composite key
B) candidate key
C) foreign key
D) surrogate key
E) dependency
C
Diff: 1
Page Ref: 105-106

49. **49) Referential integrity constraints are used to limit the possible values of a(n) _____.**
A) composite key
B) candidate key
C) foreign key
D) surrogate key
E) dependency
C
Diff: 1
Page Ref: 105-106

50. **50) A(n) _____ is used to limit the possible values of a(n) foreign key.**
A) composite key
B) surrogate key
C) functional dependency
D) referential integrity constraint
E) normal form
D
Diff: 2
Page Ref: 105-106

51. **51) Normalization is a process used to deal with which of the following modification anomalies?**
A) Insertion anomaly
B) Update anomaly
C) Deletion anomaly
D) A and B
E) A, B and C
E
Diff: 1
Page Ref: 106-107

52. **52) If the removal of facts about one entity results in the unintentional lose of data about another entity, this is referred to as a(n) _____.**
A) normalization anomaly
B) insertion anomaly
C) update anomaly
D) deletion anomaly
E) removal anomaly
D
Diff: 2
Page Ref: 106-107

53. **53) Suppose that you need to update one value of the column SalesCost in a relation. The way the relation is constructed, this value actually needs to be changed in three different rows. However, you only change the value in two of the rows. You have just created an a(n) _____.**
A) normalization anomaly
B) insertion anomaly
C) update anomaly
D) deletion anomaly
E) removal anomaly
C
Diff: 2
Page Ref: 106-107

54. **54) A table that meets the definition of a relation is in _____.**
A) First Normal Form
B) Second Normal Form
C) Third Normal Form
D) Boyce-Codd Normal Form
E) Fourth Normal Form
A
Diff: 1
Page Ref: 107,108

55. **55) A relation is in Boyce-Codd normal form if _____.**
A) every determinant is a candidate key
B) every determinant is a primary key
C) every attribute is a candidate key
D) there is more than one candidate key
E) there is more than one primary key
A
Diff: 2
Page Ref: 109-110
Fig 3-13

56. **56) If a table is designed so that every determinant is a candidate key, then that relation is in _____.**
A) First Normal Form
B) Second Normal Form
C) Third Normal Form
D) Boyce-Codd Normal Form
E) Fourth Normal Form
D
Diff: 2
Page Ref: 109-110
Fig 3-13

57. **57) If a relation is in BCNF, and each multivalued dependency has been moved to a relation of its own, then the first relation is in _____.**
A) First Normal Form
B) Second Normal Form
C) Third Normal Form
D) Boyce-Codd Normal Form
E) Fourth Normal Form
E
Diff: 2
Page Ref: 117-120

58. **58) A relation is in fourth normal form if it is in BCNF and it has no _____.**
A) transitive dependencies
B) multivalued dependencies
C) partial dependencies
D) deletion dependencies
E) referential integrity conflicts
B
Diff: 2
Page Ref: 117-120

59. **59) A relation is in domain/key normal form if _____.**
A) every key of the relation is a logical consequence of the definition of constraints and determinants
B) every key of the relation is a logical consequence of the definition of constraints and domains
C) every constraint on the relation is a logical consequence of the definition of keys and determinants
D) every constraint on the relation is a logical consequence of the definition of keys and domains
E) every domain of the relation is a logical consequence of the definition of keys and constraints
D
Diff: 2 Page Ref: 120-121

60. **60) In general, each relation should have _____.**
A) one and only one theme
B) one or more themes
C) exactly two themes
D) one or two themes
E) exactly three themes
A
Diff: 1 Page Ref: 112

61. **61) A(n) _____ is a table composed of columns and rows.**
relation
Diff: 1 Page Ref: 96-98
Fig 3-4

62. **62) In relational terms as defined by E.F. Codd, a row is called a(n) _____.**
tuple
Diff: 1 Page Ref: 98

63. **63) In relational terms as defined by E.F. Codd, a column is called a(n) _____.**
attribute
Diff: 1 Page Ref: 98

64. **64) A(n) _____ is a relationship between attributes such that if we know the value of one attribute, we can determine the value of the other attribute.**
functional dependency
Diff: 1 Page Ref: 100

65. **65) If by knowing the value of A we can find the value of B, then we would say that B is _____ on A.**
functionally dependent
Diff: 2 Page Ref: 100

66. **66) In functional dependencies, the attribute whose value is known or given is referred to as the _____.**
determinant
Diff: 2 Page Ref: 100

67. **67) Given the functional dependency (A, B) → C, the attributes (A, B) are referred to as a _____.**
composite determinant
Diff: 2 Page Ref: 101

68. **68) Given the functional dependency A → (B, C), then it is true that _____ and _____.**
A → B; A → C
Diff: 3 Page Ref: 101

69. **69) Given the functional dependency (A, B) → C, then it is not true that _____ and _____.**	A → C; B → C Diff: 3 Page Ref: 101
70. **70) Given the functional dependency A → B, it is not necessarily true that _____.**	B → A Diff: 3 Page Ref: 101
71. **71) A(n) _____ is a combination of one or more columns that is used to identify particular rows in a relation.**	key Diff: 1 Page Ref: 104
72. **72) A(n) _____ is a group of attributes that uniquely identifies a row.**	composite key Diff: 1 Page Ref: 104
73. **73) A(n) _____ is one of a group of keys that may serve as the primary key in a relation.**	candidate key Diff: 1 Page Ref: 104-105
74. **74) A(n) _____ is a candidate key that has been selected to uniquely identify rows in a relation.**	primary key Diff: 1 Page Ref: 105
75. **75) A(n) relation or table has only one _____.**	primary key Diff: 1 Page Ref: 105
76. **76) A(n) _____ is an artificial column that is added to a relation to be its primary key.**	surrogate key Diff: 1 Page Ref: 105
77. **77) A(n) _____ is one or more columns in one relation that also is the primary key in another table.**	foreign key Diff: 1 Page Ref: 105-106
78. **78) A(n) _____ is used to make sure the values of a foreign key match a valid value of a primary key.**	referential integrity constraint Diff: 1 Page Ref: 105-106
79. **79) For some relations, changing the data can have undesirable consequences called _____.**	modification anomalies Diff: 2 Page Ref: 106-107
80. **80) Relations are categorized into _____ where the categorization is based on the problems the relation has.**	normal forms Diff: 2 Page Ref: 107-108
81. **81) Any table that meets the definition of a(n) _____ is said to be in first normal form.**	relation Diff: 1 Page Ref: 107, 108
82. **82) If a table is a relation then it is in _____.**	1NF Diff: 1 Page Ref: 107, 108
83. **83) A defining requirement for _____ normal form is that every determinant must be a candidate key.**	Boyce-Codd Diff: 2 Page Ref: 109-110 Fig 3-13
84. **84) A relation is in BCNF if every _____ is a candidate key.**	determinant Diff: 2 Page Ref: 109-110 Fig 3-13
85. **85) A relation is in BCNF if every determinant is a(n) _____.**	candidate key Diff: 2 Page Ref: 109-110 Fig 3-13
86. **86) Domain/key normal form requires that every _____ be a logical consequence of the definition of domains and keys.**	constraint Diff: 2 Page Ref: 120-121
87. **87) A relation that is in _____ normal form is assured to be free from all anomalies.**	domain/key Diff: 2 Page Ref: 120-121
88. **88) Every time we break up a relation during the normalization process, we may have to create _____ constraints.**	referential integrity Diff: 2 Page Ref: 110 Fig 3-13
89. **89) A relation is in 4NF if it is in BCNF and it has no _____.**	multivalued dependencies Diff: 2 Page Ref: 117-120 Fig 3-13
90. **90) When designing or normalizing relations, each relation should have only one _____.**	theme Diff: 1 Page Ref: 112