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Started on	Monday, 24 July 2023, 7:35 AM
State	Finished
Completed on	Monday, 24 July 2023, 8:02 AM
Time taken	27 mins 8 secs
Marks	49.00/50.00
Grade	**9.80** out of 10.00 (**98**%)

Question **1**

Correct

Mark 1.00 out of 1.00

Which of the following selections best describes information?

Select one:

- a. Letters
- b. Data plus semantics ✔
- c. Letters that spell a word
- d. A number and its data type

Question 2

Correct

Mark 1.00 out of 1.00

Which of the following is data?

Select one:

- a. 32 ✔
- b. I am 32
- c. It is 32 degrees.
- d. It is 32 outside.

Question 3

Correct

Mark 1.00 out of 1.00

Which of the following code segments best describes information?

Select one:

a.
```
Cost = 10
```

b.
```
Int X;
X = 10
```

c.
```
int Dollars = 10;
Print Dollars
```

d.
```
Int Dollars;
Dollars = 10;
Cost = Dollars
```

Your answer is correct.

Question 4

Correct

Mark 1.00 out of 1.00

What are databases generally used for today?

Select one:

- a. Backing up hard drives or other storage disks
- b. Recording the behavior of real time embedded systems
- c. Storing and retrieving enterprise data for business systems ✔
- d. Performing computations for scientific and engineering application systems

Question 5

Correct

Mark 1.00 out of 1.00

Which of the following sets of terms describes the data in a database?

Select one:

- a. integrated and shared ✔
- b. redundant and accurate
- c. functional and redundant
- d. transactional and unconstrained

Question 6

Correct

Mark 1.00 out of 1.00

Which of the following describes a DBMS?

Select one:

- a. A part of a database
- b. A database application
- c. An interface between applications
- d. An interface between a database and users of the database ✔

Question 7

Correct

Mark 1.00 out of 1.00

To support concurrent transactions, a DBMS should have which of the following properties?

Select one:

- a. atomicity, durability, and isolation ✔
- b. atomicity, irreducibility, and isolation
- c. durability, irreducibility, and isolation
- d. atomicity, durability, and irreducibility

Question 8

Correct

Mark 1.00 out of 1.00

Which of the following are the most widely-used types of database today?

Select one:

- a. Network
- b. Relational ✔
- c. Hierarchical
- d. Object-oriented

Question 9

Correct

Mark 1.00 out of 1.00

Which of the following are generic database architectures?

Select one:

- a. Distributed and leased
- b. Centralized and leased
- c. Centralized and distributed ✔
- d. Centralized and networked

Question **10**

Correct

Mark 1.00 out of 1.00

Which view in the three-level database architecture offers a formal description of the data with no concern for how it will be stored?

Select one:

- a. Conceptual ✔
- b. Data
- c. External
- d. Internal

Question **11**

Correct

Mark 1.00 out of 1.00

Which of the following describes the capability to change the physical schema of a database without having to rewrite application programs?

Select one:

- a. Logical data independence
- b. Physical data dependence
- c. Physical data independence ✔
- d. Physical schema refinement

Question 12

Correct

Mark 1.00 out of 1.00

What is a database view?

Select one:

- a. a meta table
- b. a virtual table ✔
- c. a copy of a table
- d. a pointer to a table

Question 13

Correct

Mark 1.00 out of 1.00

A link can be established between two tables by the use of what kind of key?

Select one:

- a. foreign ✔
- b. hash
- c. national
- d. primary

Question 14

Correct

Mark 1.00 out of 1.00

What are rules that are valid for information in a database called?

Select one:

- a. constructs
- b. constraints ✔
- c. foreign keys
- d. primary keys

Question 15

Correct

Mark 1.00 out of 1.00

What did the predecessor to modern databases stored data in?

Select one:

- a. Flat files ✔
- b. Rough files
- c. Magnetic tape
- d. Punched cards

Question 16

Correct

Mark 1.00 out of 1.00

"User requirements" corresponds to which of the following database terms?

Select one:

- a. Internal view
- b. External view ✔
- c. Network schema
- d. Data management language

Question 17

Correct

Mark 1.00 out of 1.00

Which of the following is one of the problems with non-relational databases?

Select one:

- a. Data dependency
- b. Limited vendor support
- c. Low speed of operation
- d. Structural independence ✔

Question 18

Correct

Mark 1.00 out of 1.00

Which of the following statements best describes object-relational databases?

Select one:

- a. They have little vendor support
- b. They integrate multiple paradigms ✔
- c. They cannot be easily implemented
- d. They integrate incompatible paradigms

Question 19

Correct

Mark 1.00 out of 1.00

Which of the following statements describes the role of an E-R diagram in the development of a relational database?

Select one:

- a. An E-R diagram is transformed into the database design. ✔
- b. An E-R diagram is transformed into the internal database.
- c. An E-R diagram is transformed into the physical database.
- d. An E-R diagram is used to represent the database requirements.

Question 20

Correct

Mark 1.00 out of 1.00

On an ER diagram, which shape is used to represent an entity?

Select one:

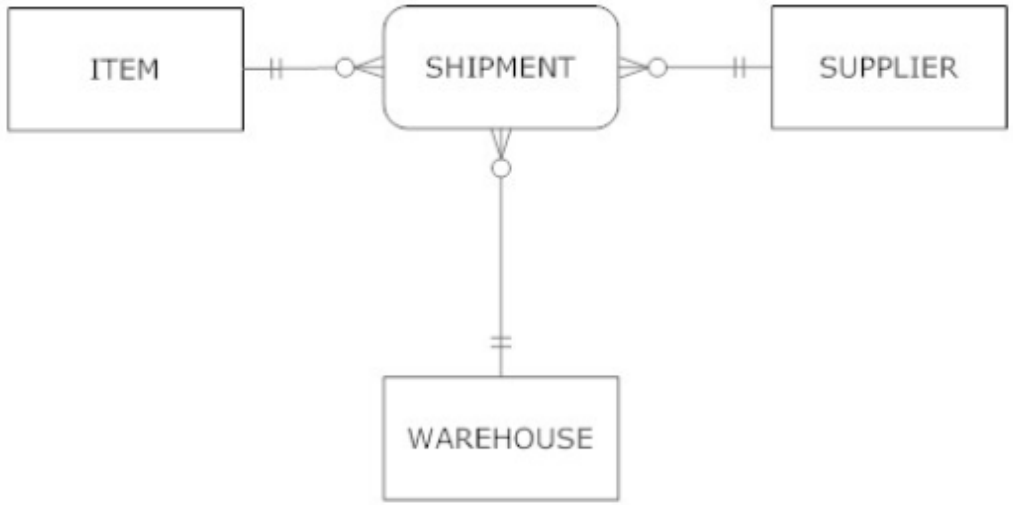
- a. Circle
- b. Diamond
- c. Oval
- d. Rectangle ✔

Question **21**

Correct

Mark 1.00 out of 1.00

Which of the following does this figure represent?



Select one:

- a. Imaging entity
- b. Associative entity ✔
- c. Binary relationship
- d. Ternary relationship

Question 22

Correct

Mark 1.00 out of 1.00

In this figure, what is Address an example of?

Select one:

a. Candidate key

b. Primary attribute

c. Composite attribute ✔

d. Multivalued attribute

Question 23

Correct

Mark 1.00 out of 1.00

Which of the following can we use to indicate whether an entity instance is mandatory?

Select one:

a. Cardinality

b. Optionality ✔

c. Disjointedness

d. Referential integrity

Your answer is correct.

Question 24

Correct

Mark 1.00 out of 1.00

You have an application domain that consists of Cities, Towns, and Neighborhoods. A City has a name, zip code, state, and a country. A Town has a name, zip code, state, and country. A Neighborhood has a name, coordinate, and population. Using a relational model, what are Students, Courses, and Sections called?

Select one:

- a. Attributes
- b. Constraints
- c. Entities ✔
- d. Relations

Your answer is correct.

Question 25

Correct

Mark 1.00 out of 1.00

This figure shows an ER diagram that contains a one to many relationship, and four possible ways to map the diagram to a set of relations. Which mapping is correct?

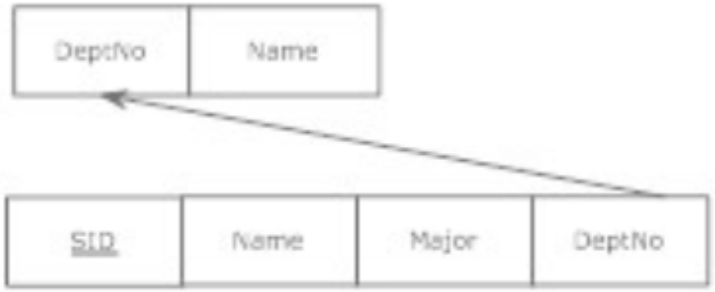
Select one:

a.

b.

c.

d.



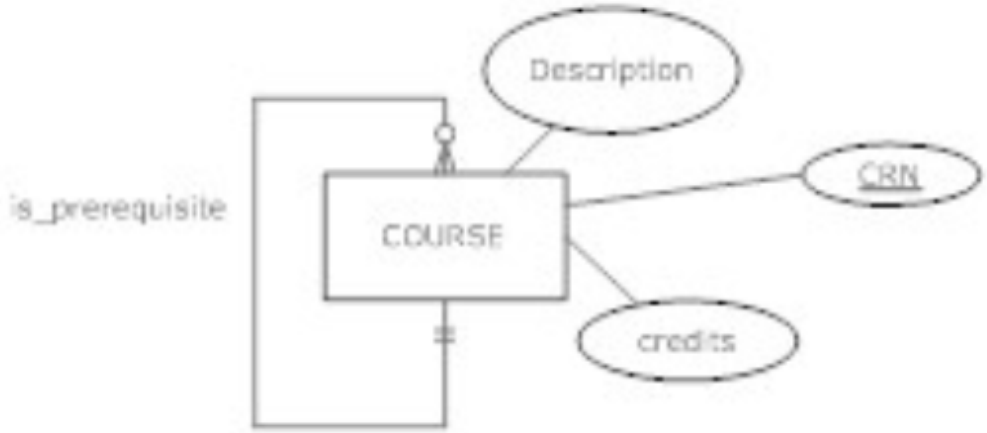
Your answer is correct.

Question 26

Correct

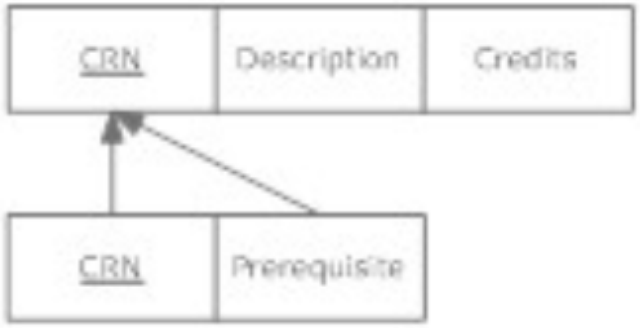
Mark 1.00 out of 1.00

The diagram contains a unary entity which has a many-to-many relationship. Which of the following best demonstrates a mapping of the ERD to relations?



Select one:

a.



b.

c.

d.

Your answer is correct.

Question 27

Incorrect

Mark 0.00 out of 1.00

Which of the following is an additional constraint that is added by users or database administrators?

Select one:

- a. Entity integrity
- b. Domain integrity ✖
- c. Semantic integrity
- d. Referential integrity

Question 28

Correct

Mark 1.00 out of 1.00

Which of the following statements about domain constraints is true?

Select one:

- a. They cannot be used in most modern database systems
- b. They ensure values entered into a table satisfy conditions ✔
- c. They can only check numeric values for arithmetic relations
- d. They cannot always be implemented in some SQL implementations

Question 29

Correct

Mark 1.00 out of 1.00

In relational algebra, how would one select just the name from the student relation?

Select one:

- a. Π (Student)
- b. Π (Course)
- c. Π_{Name} (Student) ✔
- d. σ_{name} (Student)

Question 30

Correct

Mark 1.00 out of 1.00

What is a tuple?

Select one:

- a. A field in a relation
- b. An index on a table
- c. A way for a database to store tables
- d. A collection of attributes of a relation ✔

Question 31

Correct

Mark 1.00 out of 1.00

If we had another relation, staff, which was union compatible with faculty, what would the following expression return for a result?

Π_{empno} (Staff ∪ Instructor)

Select one:

- a. The employee number of every staff employee and every instructor
- b. Every employee who is either a member of the staff or an instructor
- c. All tuples of the instructor relation along with all tuples of the staff relation
- d. The employee number of all rows in the staff and in the instructor relations ✔

Question 32

Correct

Mark 1.00 out of 1.00

Which of the following is Student × Courses an example of?

Select one:

- a. A theta join
- b. An inner join
- c. A natural join
- d. A cartesian product ✔

Question 33

Correct

Mark 1.00 out of 1.00

Which of the following is this operation an example of?

$\Pi_{Name}(Student) \bowtie \Pi_{CourseID}(Course)$

Select one:

- a. An equijoin
- b. A theta join
- c. A natural join ✔
- d. A cartesian product

Question 34

Correct

Mark 1.00 out of 1.00

In what normal form is the relation in the figure?

Select one:

- a. First normal form
- b. Second normal form ✔
- c. Third normal form
- d. Boyce-Codd normal form

Question 35

Correct

Mark 1.00 out of 1.00

When is a relation considered to be in first normal form (1NF)?

Select one:

- a. When there are no dependencies of an attribute on another attribute in the table
- b. When there are no compound primary keys or partial key that can have a null value
- c. When there are no partial dependencies or transitive dependencies on a primary key
- d. When there are no repeating groups of values of an attribute in one or more columns ✔

Question 36

Correct

Mark 1.00 out of 1.00

Consider the following database table:

PartNo	Description	CustID	Name	QuantityOrdered
2361	Pens	7810	J. Smith	22
2371	Paper Clips	7810	J. Smith	1000
2914	Pens	7914	K. Jones	900

If we were to delete the third row, all information about customer 7914 would be lost. Which of the following is this an example of?

Select one:

- a. A deletion anomaly ✔
- b. An update anomaly
- c. An insertion anomaly
- d. A modification anomaly

Question 37

Correct

Mark 1.00 out of 1.00

When is a relation considered to be in second normal form (2NF)? (Select the best answer.)

Select one:

- a. When there are no repeating groups in a relation
- b. When there are no transitive functional dependencies
- c. When there are no dependencies on part of the primary key ✔
- d. When there are no dependent attributes in transitive relation

Question 38

Correct

Mark 1.00 out of 1.00

What is the difference between data definition language and data manipulation language?

Select one:

- a. It is used to create tables, views, etc., and data manipulation language is only used for inserts ✔
- b. It is used for queries and data manipulation language is used for updating and deleting tables only
- c. It is used to create the files that store tables whereas data manipulation language is used to update data
- d. It is used to create tables, indexes, etc., whereas data manipulation language is used to query the database

Your answer is correct.

Question 39

Correct

Mark 1.00 out of 1.00

Which of the following is a data manipulation command?

Select one:

- a. Alter
- b. Create
- c. Drop
- d. Select ✔

Question 40

Correct

Mark 1.00 out of 1.00

If we have the following table:

customer (custNo, name, street, city, state, zip, telephone, creditLimit)

What will this update command do?

```
update customer
set creditLimit = creditLimit * 1.05
where state = 'MA'
```

Select one:

a. Insert a new record into the table for each MA customer

b. Set the credit limit of all MA customers to credit limit * 1.05 ✔

c. Set the credit limit of all MA customers to credit limit / 1.05

d. Change state to MA where credit limit was increased by 5%

Question 41

Correct

Mark 1.00 out of 1.00

Which of the following are constraints that can be used with the create table command?

Select one:

- a. references, alias, check
- b. null, primary key, view of ✔
- c. primary key, not null, unique
- d. primary key, default, between

Question 42

Correct

Mark 1.00 out of 1.00

What is the delete statement used to do?

Select one:

- a. Delete table rows that match a condition ✔
- b. Truncate parts of a table that are too long
- c. Remove table columns that match a condition
- d. Insert a mark to indicate that a table is deleted

Question 43

Correct

Mark 1.00 out of 1.00

What is the select statement used to do?

Select one:

- a. Query a table ✔
- b. Create a new table
- c. Insert data into a table
- d. Delete rows from a table

Question 44

Correct

Mark 1.00 out of 1.00

What will the following query return for results?

```
select lname
from customer
where credit_limit in (1000,2000,3000)
```

Select one:

- a. All last names and credit limits from 1000 to 2000, and 2000 to 3000
- b. The last name of all customers with a credit limit of 1000, 2000, or 3000 ✔
- c. All last names and credit limits where the credit limit is 1000, 2000, 3000
- d. The last name of all customers with a credit from 1000 to 2000, and 2000 to 3000

Question 45

Correct

Mark 1.00 out of 1.00

Which of the following is a SQL aggregate function?

Select one:

- a. average
- b. avg ✔
- c. mean
- d. sqrt

Question 46

Correct

Mark 1.00 out of 1.00

Which of the following describes the order by clause?

Select one:

- a. It is always the first part of an SQL select statement
- b. It sorts the entire table by ordering the values of a column(s)
- c. It sorts the result set from a query by ordering column values ✔
- d. It uses descending when the order for sorting is not specified

Question 47

Correct

Mark 1.00 out of 1.00

What does an inner join do?

Select one:

- a. Return all rows in all tables
- b. Return only those rows with a matching row in the corresponding table ✔
- c. Return all rows in the right table regardless of whether there is a match in the left table
- d. Return all rows in the left or right table regardless of whether there is a match in the corresponding table

Question 48

Correct

Mark 1.00 out of 1.00

Which type of join returns values from either table regardless of whether there is a matching value in the other table?

Select one:

- a. Full join ✔
- b. Left join
- c. Half join
- d. Empty join

Question 49

Correct

Mark 1.00 out of 1.00

You are given the following tables:

Course

CourseID	**Description**	**Credits**
CS101	Computer Science I	3
CS201	Elementary Data Structures	3
ENGL210	Technical Writing	3

Registration

SID	**CourseID**	**SemID**	**Instructor**	**Grade**
282712	ENGL210	201701	H. Zacny	B+
362112	CS101	201701	K. Ross	C

What would the following SQL Select statement produce for output?

```
select course.description, registration.SID,registration.grade
from registration
right join course
on registration.courseID = course.courseID
```

Select one:

a. Computer Science I 362112 C

b. Computer Science I 362112 C
Technical Writing 28212 B+

c. Computer Science I 362112 C ✔
Elementary Data Structures null null
Technical Writing 28212 B+

d. No results due to syntax error

Your answer is correct.

Question 50

Correct

Mark 1.00 out of 1.00

You are given the following tables:

Student

SID	**Lname**	**Fname**	**Major**
986223	Smith	Janet	Chemistry
362112	Williams	Henry	Computer Science
282712	Jones	John	English Literature

Registration

SID	**CourseID**	**SemID**	**Instructor**	**Grade**
282712	ENGL210	201701	H. Zacny	B+
362112	CS101	201701	K. Ross	C

What would the following SQL Select statement produce for output?

```
select lname,CourseID, grade
from student
left join registration
on student.sid = registration.sid
```

Select one:

a. Williams CS101

b. Williams CS101 C
Jones ENGL210 B+

c. Smith null null ✔
Williams CS101 C
Jones ENGL210

d. No output due to a syntax error

Your answer is correct.

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