D426 – Data Management Foundations

This practice test covers D426 Course Material and is representative of the Objective Assessment (OA). It should not be considered a true analog of the OA. The answer key for this practice test can be found at the end of this document.

Multiple Choice
Identify the choice that best completes the statement or answers the question.

Jump to Answer Key

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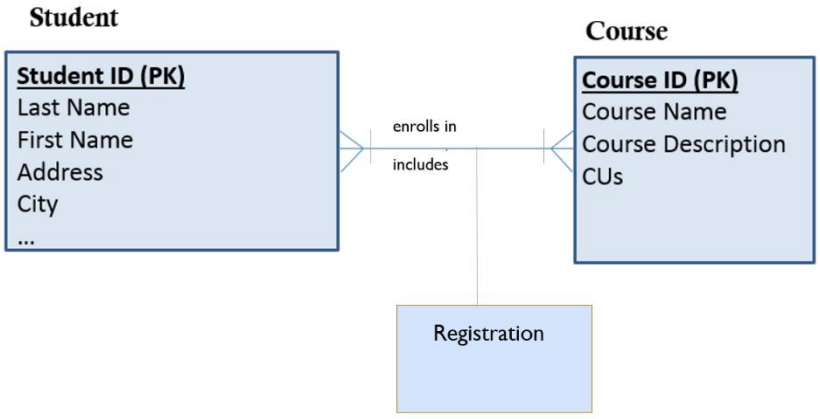
Q1	A record consists of a ____. ☐ **A.** Character ☐ **B.** Collection of related characters ☐ **C.** Set of one or more fields ☐ **D.** Group of files View Correct Answer

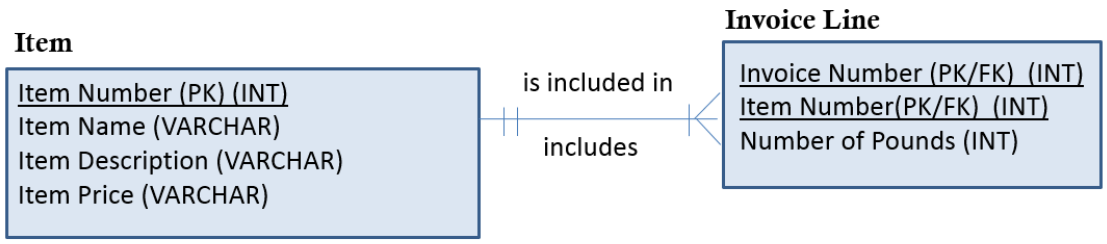
Q2	A DBMS performs several important functions that guarantee the integrity and consistency of the data in the database. Which of the following is NOT one of those functions? ☐ **A.** Data integrity management ☐ **B.** Data storage management ☐ **C.** Data reports ☐ **D.** Security management View Correct Answer

Q3	Which item is unstructured data? ☐ **A.** A record representing one student ☐ **B.** A video ☐ **C.** A table that holds student data ☐ **D.** A relational database that holds course registration data View Correct Answer

Q4	Data is/are _____. ☐ **A.** Information ☐ **B.** Raw facts ☐ **C.** Processed information ☐ **D.** A DBMS View Correct Answer

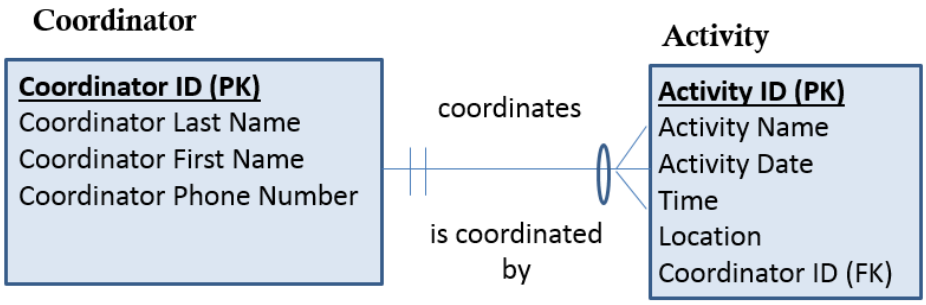
Q5	 **Use this figure to answer questions 5 and 6** Which classification is correct for the box marked “Registration” in the given E-R Diagram? ☐ **A.** Intersection data ☐ **B.** Modality data ☐ **C.** Cardinality data ☐ **D.** Student data View Correct Answer

Q6	Which type of relationship exists between Student and Course in the **Q5** diagram? ☐ **A.** One-to-many binary ☐ **B.** Many-to-many binary ☐ **C.** One-to-many unary ☐ **D.** Many-to-many unary View Correct Answer

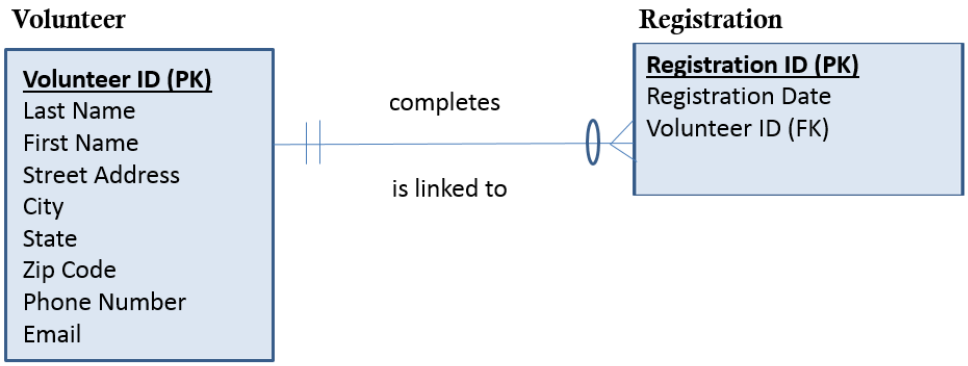
Q7	 **Use this figure to answer question 7** What is the E-R Diagram about an online pet food vendor showing? ☐ **A.** An Invoice Line can include many Items. ☐ **B.** An item can only be included in one Invoice Line. ☐ **C.** One Invoice Line must include a minimum of one and a maximum of one Item. ☐ **D.** The relationship between Item and Invoice Line is many-to-many. View Correct Answer

Q8	**Example:** A pet owner can have many pets; a specific pet is linked to one pet owner. Which kind of binary relationship is described in this example? ☐ **A.** One-to-one ☐ **B.** One-to-many ☐ **C.** Many-to-many ☐ **D.** Associative View Correct Answer

Q9	A Database Models is ____. ☐ **A.** a conceptual framework for database systems ☐ **B.** a leading relational database system sponsored by Oracle ☐ **C.** s suitable for non-commercial applications such as education ☐ **D.** is a specification of database objects such as tables View Correct Answer

Q10	 **Use this figure to answer question 10** What is the correct way to read the modality on the right side of the association? ☐ **A.** A maximum of one activity ☐ **B.** A maximum of zero activities ☐ **C.** A minimum of zero activities ☐ **D.** A maximum of many activities View Correct Answer

Q11



Use this figure to answer question 10

What is the modality of Volunteer?

- ☐ **A.** Two or more
- ☐ **B.** Two
- ☐ **C.** Dependent on registration date
- ☐ **D.** At least one

View Correct Answer

Q12

What type of relationship is expressed with the phrase "A Painter paints one or more Paintings"?

- ☐ **A.** 1:M
- ☐ **B.** 1:1
- ☐ **C.** M:1
- ☐ **D.** M:N

View Correct Answer

Q13

The entity integrity rule requires that ____.

- ☐ **A.** All primary key entries are unique
- ☐ **B.** A part of the key may be null
- ☐ **C.** Foreign key values do not reference primary key values
- ☐ **D.** Duplicate object values are allowed

View Correct Answer

Q14	What does the 'refer' in referential integrity mean? ☐ **A.** The relationships between entities and attributes, also called referrals. ☐ **B.** Reference points that databases place in each record during backups. ☐ **C.** A foreign key in a table must refer to a valid primary key in another table. ☐ **D.** You delete a row in one table whose primary key does not have a matching foreign key value in another table. View Correct Answer

Q15	A table is perceived as a ____. ☐ **A.** flat structure ☐ **B.** two-dimensional structure ☐ **C.** linked structure ☐ **D.** graph View Correct Answer

Q16	Another word for the term "relation" is ____. ☐ **A.** Datafile ☐ **B.** Data index ☐ **C.** Table Name ☐ **D.** Data query View Correct Answer

Q17	DISTINCT filters the results to remove duplicates. ORDER BY ____. ☐ **A.** does the same thing ☐ **B.** alters the order of the rows in a table ☐ **C.** modifies the presentation by changing the order of the result set ☐ **D.** removes duplicates in the table View Correct Answer

Q18	A primary key ____. ☐ **A.** is a minimal superkey ☐ **B.** is always the first field in each table ☐ **C.** must be numeric ☐ **D.** must be unique View Correct Answer

Q19	A table can be logically connected to another table by defining a ____. ☐ **A.** hyperlink ☐ **B.** common attribute ☐ **C.** primary key ☐ **D.** logic key View Correct Answer

Q20	A relational operator that allows for the combination of information from two or more tables is known as the ____ operator. ☐ **A.** SELECT ☐ **B.** PROJECT ☐ **C.** JOIN ☐ **D.** DIFFERENCE View Correct Answer

Q21	Which of the following statements concerning the primary key is true? ☐ **A.** All primary key entries are unique. ☐ **B.** The primary key may be null. ☐ **C.** The primary key is not required for all tables. ☐ **D.** The primary key data do not have to be unique. View Correct Answer

Q22	We can describe a link by observing that ____. ☐ **A.** a primary key of one table appears again as a primary key in a related table ☐ **B.** a foreign key of one table appears again as a foreign key in a related table ☐ **C.** a primary key of one table appears again as a foreign key in a related table ☐ **D.** a foreign key of one table appears again as a surrogate key in a related table View Correct Answer

Q23	When designing a new database, it is a good idea to ____. ☐ **A.** minimize data redundancy ☐ **B.** include redundant fields ☐ **C.** include a common field in all tables ☐ **D.** use composite keys View Correct Answer
Q24	An attribute (or combination of attributes) that uniquely identifies each entity in a table is called a ____. ☐ **A.** superkey ☐ **B.** foreign key ☐ **C.** master key ☐ **D.** secondary key View Correct Answer

Q25	A foreign key must ____. ☐ **A.** be numeric ☐ **B.** be unique ☐ **C.** be defined in all tables within the database ☐ **D.** match the value of a primary key in a related table View Correct Answer

Q26	The Entity Relationship Diagram (ERD) is used to graphically represent the ____ database model. ☐ **A.** condensed ☐ **B.** physical ☐ **C.** logical ☐ **D.** conceptual View Correct Answer

Q27	A derived attribute ____. ☐ **A.** must be stored physically within the database ☐ **B.** need not be physically stored within the database ☐ **C.** has many values ☐ **D.** must be based on the value of three or more attributes View Correct Answer

Q28	A relationship is an association between ____. ☐ **A.** objects ☐ **B.** entities ☐ **C.** databases ☐ **D.** fields View Correct Answer

Q29	A ____ key is a key that consists of more than one attribute. ☐ **A.** primary ☐ **B.** foreign ☐ **C.** composite ☐ **D.** domain View Correct Answer

Q30	A(n) ____ attribute is one that cannot be subdivided. ☐ **A.** composite ☐ **B.** atomic ☐ **C.** binary-valued ☐ **D.** multivalued View Correct Answer

Q31	If an entity can exist apart from one or more related entities, it is said to be ____-independent. ☐ **A.** existence ☐ **B.** relationship ☐ **C.** business ☐ **D.** weak View Correct Answer

Q32	A ____ relationship exists when three entities are associated. ☐ **A.** unary ☐ **B.** binary ☐ **C.** ternary ☐ **D.** weak View Correct Answer

Q33	The set of possible values for an attribute is a ____. ☐ **A.** domain ☐ **B.** range ☐ **C.** set ☐ **D.** key View Correct Answer

Q34	Which attribute(s) make up the primary key in the table definition: CLASS (CRS_CODE, CLASS_SECTION, CLASS_TIME, CLASS_ROOM, PROF_NUM) ☐ **A.** CRS_CODE ☐ **B.** CLASS_SECTION ☐ **C.** CRS_CODE and CLASS_SECTION ☐ **D.** There is no primary key View Correct Answer

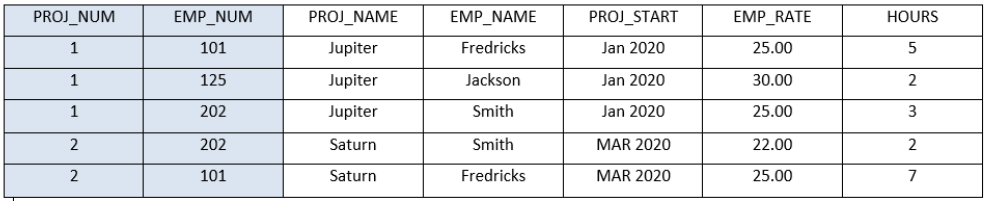
Q35	A table that has all key attributes defined, has no repeating groups, and all its attributes are dependent on the primary key, is said to be in ____. ☐ **A.** 1NF ☐ **B.** 2NF ☐ **C.** 3NF ☐ **D.** 4NF View Correct Answer

Q36	A table that is in 2NF and contains no transitive dependencies is said to be in ____. ☐ **A.** 1NF ☐ **B.** 2NF ☐ **C.** 3NF ☐ **D.** 4NF View Correct Answer

Q37	Data redundancy produces ____. ☐ **A.** slower lookups ☐ **B.** robust design ☐ **C.** efficient storage use ☐ **D.** data integrity problems View Correct Answer

Q38	Normalization works through a series of normal ____. ☐ **A.** schemas ☐ **B.** entities ☐ **C.** databases ☐ **D.** forms View Correct Answer

Q39	Dependencies based on only a part of a composite primary key are called ____ dependencies. ☐ **A.** primary ☐ **B.** partial ☐ **C.** incomplete ☐ **D.** composite View Correct Answer

Q40	 | PROJ_NUM	EMP_NUM	PROJ_NAME	EMP_NAME	PROJ_START	EMP_RATE	HOURS
---	---	---	---	---	---	---
1	101	Jupiter	Fredricks	Jan 2020	25.00	5
1	125	Jupiter	Jackson	Jan 2020	30.00	2
1	202	Jupiter	Smith	Jan 2020	25.00	3
2	202	Saturn	Smith	MAR 2020	22.00	2
2	101	Saturn	Fredricks	MAR 2020	25.00	7	 **Use this figure to answer question 40** Given the table EMP_PROJ (PROJ_NUM, EMP_NUM, PROJ_NAME, EMP_NAME, PROJ_START, HOURS) (shown above), which of the following is a partial dependency? ☐ **A.** PROJ_NUM --> PROJ_NAME ☐ **B.** PROJ_NAME --> HOURS ☐ **C.** PROJ_NUM, EMP_NUM --> HOURS ☐ **D.** PROJ_NUM, EMP_NUM --> PROJ_NAME View Correct Answer

Q41	A relation is not in 1NF if _____. ☐ **A.** it has multiple candidate keys ☐ **B.** all the key attributes are defined ☐ **C.** there are repeating groups in the table ☐ **D.** all attributes are dependent on the primary key View Correct Answer

Q42	The SQL command that lets you insert data into a table, one row at a time, is ____. ☐ **A.** INSERT ☐ **B.** SELECT ☐ **C.** COMMIT ☐ **D.** UPDATE View Correct Answer

Q43	The SQL command that enables you to make changes in the data is ____. ☐ **A.** INSERT ☐ **B.** SELECT ☐ **C.** COMMIT ☐ **D.** UPDATE View Correct Answer

Q44	To list all the contents of the PRODUCT table, you would use ____. ☐ **A.** LIST * FROM PRODUCT; ☐ **B.** SELECT * FROM PRODUCT; ☐ **C.** DISPLAY * FROM PRODUCT; ☐ **D.** SELECT ALL FROM PRODUCT; View Correct Answer

Q45	Which command would you use when making corrections to the PRODUCT table? ☐ **A.** CHANGE PRODUCT SET P_INDATE = '01/18/2004' WHERE P_CODE = '13-Q2/P2'; ☐ **B.** ROLLBACK PRODUCT SET P_INDATE = '01/18/2004' WHERE P_CODE = '13-Q2/P2'; ☐ **C.** EDIT PRODUCT SET P_INDATE = '01/18/2004' WHERE P_CODE = '13-Q2/P2'; ☐ **D.** UPDATE PRODUCT SET P_INDATE = '01/18/2004' WHERE P_CODE = '13-Q2/P2'; View Correct Answer

Q46	Which command would be used to delete the table row where the P_Code = '2238/QPD'? ☐ **A.** DELETE FROM PRODUCT WHERE P_CODE = '2238/QPD'; ☐ **B.** REMOVE FROM PRODUCT WHERE P_CODE = '2238/QPD'; ☐ **C.** ERASE FROM PRODUCT WHERE P_CODE = '2238/QPD'; ☐ **D.** ROLLBACK FROM PRODUCT WHERE P_CODE = '2238/QPD'; View Correct Answer

Q47	Which command is used to select partial table contents? ☐ **A.** SELECT <column(s)> FROM <Table name> WHERE <Item>; ☐ **B.** LIST <column(s)> FROM <Table name> WHERE <Conditions>; ☐ **C.** SELECT <column(s)> FROM <Table name> WHERE <Conditions>; ☐ **D.** LIST<column(s)> FROM <Table name> WHERE <Item>; View Correct Answer

Q48	Which query will output the table contents when the value of V_CODE is less than or equal to 21344? ☐ **A.** SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE FROM PRODUCT WHERE V_CODE <> 21344; ☐ **B.** SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE FROM PRODUCT WHERE V_CODE <=21344; ☐ **C.** SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE FROM PRODUCT WHERE V_CODE => 21344; ☐ **D.** SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE FROM PRODUCT WHERE V_CODE = 21344; View Correct Answer

Q49

Which query will list all the rows in which the inventory stock dates occur on or after January 20, 2006?

☐ **A.**
```
SELECT P_DESCRIPT, P_QOH, P_MIN, P_PRICE, P_INDATE
    FROM PRODUCT
        WHERE P_INDICATE >= '2006-01-20'
```

☐ **B.**
```
SELECT P_DESCRIPT, P_QOH, P_MIN, P_PRICE, P_INDATE
    FROM PRODUCT
        WHERE P_INDICATE >= #01/20/2004#
```

☐ **C.**
```
SELECT P_DESCRIPT, P_QOH, P_MIN, P_PRICE, P_INDATE
    FROM PRODUCT
        WHERE P_INDICATE >= '20-JAN-2004'
```

☐ **D.**
```
SELECT P_DESCRIPT, P_QOH, P_MIN, P_PRICE, P_INDATE
    FROM PRODUCT
        WHERE P_INDICATE >= {01-20-2004}
```

View Correct Answer

Q50

What is the SQL syntax requirement to list the table contents for either V_CODE = 21344 or V_CODE = 24288?

☐ **A.**
```
SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE
  FROM PRODUCT
    WHERE V_CODE = 21344
      OR V_CODE <= 24288
```

☐ **B.**
```
SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE
  FROM PRODUCT
    WHERE V_CODE = 21344
      OR V_CODE => 24288
```

☐ **C.**
```
SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE
  FROM PRODUCT
    WHERE V_CODE = 21344
      OR V_CODE > 24288
```

☐ **D.**
```
SELECT P_DESCRIPT, P_INDATE, P_PRICE, V_CODE
  FROM PRODUCT
    WHERE V_CODE = 21344
      OR V_CODE = 24288
```

View Correct Answer

Q51

What is the command to join the P_DESCRIPT and P_PRICE fields from the PRODUCT table and the V_NAME, V_AREACODE, V_PHONE, and V_CONTACT fields from the VENDOR table where the value of V_CODE match?

☐ **A.**
```
SELECT P_DESCRIPT, P_PRICE, V_NAME, V_CONTACT,
V_AREACODE, V_PHONE
    FROM PRODUCT, VENDOR
        WHERE PRODUCT.V_CODE <> VENDOR.V_CODE;
```

☐ **B.**
```
SELECT P_DESCRIPT, P_PRICE, V_NAME, V_CONTACT,
V_AREACODE, V_PHONE
    FROM PRODUCT, VENDOR
        WHERE PRODUCT.V_CODE = VENDOR.V_CODE;
```

☐ **C.**
```
SELECT P_DESCRIPT, P_PRICE, V_NAME, V_CONTACT,
V_AREACODE, V_PHONE
    FROM PRODUCT, VENDOR
        WHERE PRODUCT.V_CODE <= VENDOR.V_CODE;
```

☐ **D.**
```
SELECT P_DESCRIPT, P_PRICE, V_NAME, V_CONTACT,
V_AREACODE, V_PHONE
    FROM PRODUCT, VENDOR
        WHERE PRODUCT.V_CODE => VENDOR.V_CODE;
```

View Correct Answer

Q52

SQL allows the use of special operators in conjunction with the WHERE clause. A special operator used to check for similar character strings is ____.

☐ **A.** BETWEEN
☐ **B.** IS NULL
☐ **C.** LIKE
☐ **D.** IN

View Correct Answer

Q53

A table can be deleted from the database by using the ____ command.

☐ **A.** DROP
☐ **B.** DELETE
☐ **C.** MODIFY
☐ **D.** ERASE

View Correct Answer

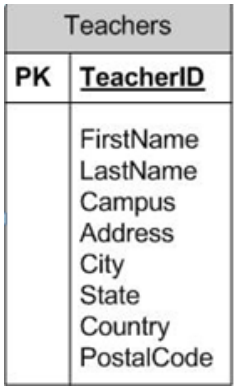
Q54	UPDATE tablename _____ [WHERE conditionlist]; ☐ **A.** SET columnname = expression ☐ **B.** columnname = expression ☐ **C.** expression = columnname ☐ **D.** LET columnname = expression View Correct Answer

Q55	A ____ join returns rows with matching values and includes all rows from both tables (T1 and T2) with unmatched values. ☐ **A.** natural ☐ **B.** cross ☐ **C.** full outer ☐ **D.** left outer View Correct Answer

Q56	During which step in the extract, transform, load (ETL) process are raw data sets aggregated? ☐ **A.** Transformation ☐ **B.** Extraction ☐ **C.** Loading ☐ **D.** Denormalization View Correct Answer

Q57	Which is an important issue associated with the loading component of extract, transform, load (ETL)? ☐ **A.** Mapping keys from one system to another. ☐ **B.** Monitor refreshing volume and frequency. ☐ **C.** Determining the content of the data. ☐ **D.** Denormalizing and renormalizing data. View Correct Answer

Q58



Use this figure to answer question 58

Scenario: Each teacher is associated with exactly one campus. The address in the table is the address for the campus where the teacher teaches.

What change would you need to make to normalize the database to the third normal form (3NF)?

☐ **A.** Combine the FirstName and LastName columns into a single column.

☐ **B.** Combine the Campus, Address, City, State, Country, and PostalCode columns into a single column.

☐ **C.** Create a separate table for campus address information. Use the Campus as the primary key. Add a TeacherID column to the table and relate it to the Teacher ID column in the Teachers table.

☐ **D.** Create a separate table for campus address information. Use Campus as the primary key for the table. Create a foreign key in the Teachers table that relates teacher to the campus.

View Correct Answer

Q59

Which statement will remove all rows from the Materials table that have a Status value of 'Obsolete' but do not have a value for the VendorID column?

☐ **A.**
```
DELETE Materials
  WHERE Status = 'Obsolete' OR VendorID IS NULL
```

☐ **B.**
```
DELETE FROM Materials
  WHERE Status = 'Obsolete' AND VendorID IS NULL
```

☐ **C.**
```
DELETE MaterialID, Description, Status, VendorID
  FROM Materials
  WHERE Status = 'Obsolete' AND VendorID IS NULL
```

☐ **D.**
```
DELETE FROM Materials
  WHERE Status = 'Obsolete'
  WHERE VendorID IS NULL
```

View Correct Answer

Q60

Column Name	Data Type	Allow Nulls
StudentID	nchar(10)	☐
Test	int	☐
Date	datetime	☐
Score	int	☑
InstructorID	nchar(10)	☑

Use this figure to answer question 60

The table above has the following characteristics:

- Each student has a unique StudentID that references the Students table.
- A specific test can be taken more than once.
- Each instructor has a unique InstructorID that references the Instructors table
- Each student may take multiple tests on the same date.
- Each student may take tests on multiple dates.

What column or columns should you use for the primary key?

☐ **A.** StudentID, Date

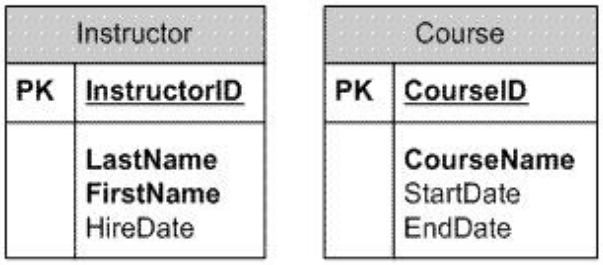
☐ **B.** StudentID, Test, Date, InstructorID

☐ **C.** StudentID, Test, and Date

☐ **D.** Test

View Correct Answer

Q61



Use this figure to answer question 61

Scenario: You are creating a relational database to store information about instructors and the courses that each instructor teaches. Each course is taught by a single instructor. You have created an Instructor table and a Course table as shown above. You need to create a relationship between the Instructor table and the Course table. You need to keep duplicate data to a minimum.

How would you do this?

- ☐ **A.** Create a new column in the Instructor table.
- ☐ **B.** Create new columns in the Instructors table for each course taught.
- ☐ **C.** Create a new table that includes two columns.
- ☐ **D.** Create a new column in the Course table

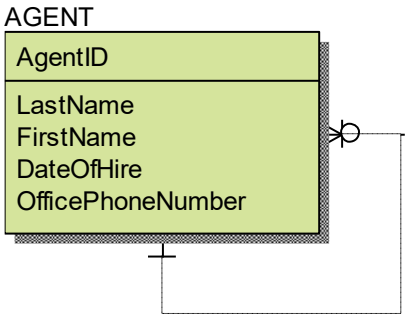
View Correct Answer

Q62

Which of the following is structured data?

- ☐ **A.** Images
- ☐ **B.** Email attachments
- ☐ **C.** Records in a database
- ☐ **D.** Audio/Video

View Correct Answer



Use this figure to answer questions 63 and 64

Q63

Scenario: Agents at the NWREA may be assigned as a mentor to zero or more other agents. However, each agent being mentored is mentored by only one NWREA agent.

Which kind of relationship does the diagram depict?

- ☐ **A.** Unary one-to-many
- ☐ **B.** Binary many-to-many
- ☐ **C.** Unary many-to-many
- ☐ **D.** Binary one-to-many

View Correct Answer

Q64

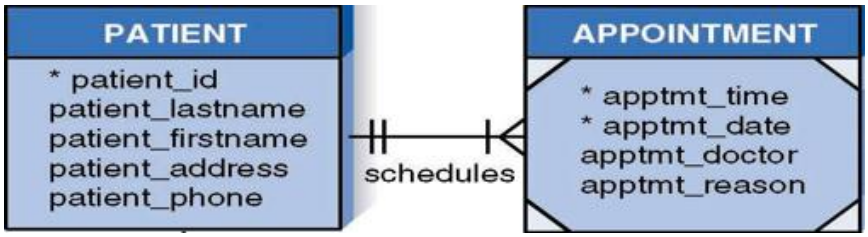
Scenario: Agents at the NWREA are assigned as a mentor to one other agent. Each NWREA mentor can only work with one agent at a time. Further, each agent is only mentored by one PNREA agent. However, while being mentored is required, being a mentor is not.

Which kind of relationship does the diagram depict?

- ☐ **A.** Unary one-to-many
- ☐ **B.** Binary many-to-many
- ☐ **C.** Unary one-to-one
- ☐ **D.** Binary one-to-many

View Correct Answer

Q65



Use this figure to answer question 65

What is the modality of appointment?

- ☐ **A.** At least one
- ☐ **B.** Dependent on the quantity
- ☐ **C.** Two
- ☐ **D.** Two or more

View Correct Answer

Q66

Registration ID	Registration Date	Student ID	Course 1	Course 2	Course 3	Course 4
215	10/1/16	101	C175	C170	C192	C200

Use this figure to answer question 66

What form is this table in?

- ☐ **A.** Unnormalized
- ☐ **B.** 1NF
- ☐ **C.** 2NF
- ☐ **D.** 3NF

View Correct Answer

Q67

Registration ID	Registration Date	Volunteer ID	Name	Address	City, State, Zip Code	Activity ID 1	Activity Name 1	Activity ID 2	Activity Name 2	Activity ID 3	Activity Name 3
1	1/26/2016	101	Mary Nguyen	123 Appletree Lane	Seattle, WA 98111	1	Community Park Cleanup	4	Soup Kitchen	23	Community Garden Preparation

Use this figure to answer question 67

What form is this table in?

- ☐ **A.** Unnormalized
- ☐ **B.** 1NF
- ☐ **C.** 2NF
- ☐ **D.** 3NF

View Correct Answer

Q68

Activity ID	Activity Name	Date	Time	Location	Number of hours	Coordinator ID	Coordinator Name	Coordinator Phone Number
1	Community Park Cleanup	2/13/16	10am	Clover Community Park	2	32	George Prasad	(253) 555-1111
4	Soup Kitchen	2/15/16	2pm	Jasmine Community Center	3	11	Alison Chang	(206) 555-5353
23	Community Garden Preparation	4/20/16	10am	Clover Community Park	4	32	George Prasad	(253) 555-1111

Use this figure to answer question 68

What form is this table in?

- ☐ **A.** Unnormalized
- ☐ **B.** 1NF
- ☐ **C.** 2NF
- ☐ **D.** 3NF

View Correct Answer

Q69

Invoice Number	Item Number	Date	Patron Number	Last Name	Item Name	Item Price	Number of Pounds
1	NB01	2016-01-05	101	Wu	Nature Blends Dog Food	8.00	20
1	NB02	2016-01-05	101	Wu	Nature Blends Dog Treats	10.00	5
1	NB03	2016-01-05	101	Wu	Nature Blends Dental Chews	12.50	30
1	NB04	2016-01-05	101	Wu	Nature Blends Vitamins	22.00	5
2	NB04	2016-03-05	193	Jones	Nature Blends Vitamins	22.00	2

Use this figure to answer question 65

What form is this table in?

- ☐ **A.** Unnormalized
- ☐ **B.** 1NF
- ☐ **C.** 2NF
- ☐ **D.** 3NF

View Correct Answer

ANSWER KEY

*Click the number in the Q column to return to the question.

Q	A	Mark Correct	Explanation
1	**C**	☐	A set of connected fields in a table make up a row, and that complete row is referred to as a ***record*.**
2	**C**	☐	Data based reports from a database are generated using analytics tools rather than DBMS.
3	**B**	☐	A video itself is not an example of structured data, but various fields describing the video would be.
4	**B**	☐	Data by itself cannot tell us much, but data connected in a logical way can produce information which can be acted on.
5	**A**	☐	The term *intersection data* refers to data which can be used to connect tables which do not share common fields by containing fields that are common to **both other tables.**
6	**B**	☐	Since the outer icon on both sides of the line representing the relationship is a "crow's foot" and the relationship includes **two** entities, the relationship would be *binary many-to-many*.
7	**C**	☐	Since the line representing the relationship has 2 single **|** marks on the item side of the diagram, the item has both a minimum and maximum of **one** in the relationship.
8	**B**	☐	Since there can only be **one** owner per pet and a pet owner can have **many** pets, the relationship is *one-to-many*.
9	**A**	☐	zyBooks Link
10	**C**	☐	Modality is a description of the **minimum** number of values on one side of a relationship. zyBooks Link
11	**D**	☐	*Minimum* and *At Least* are synonyms in questions 10 & 11. zyBooks Link
12	**A**	☐	If you think about a real artist, Da Vinci produced several works of art. The relationship between him and his paintings is 1:M (single artist, several works).
13	**A**	☐	**Entity Integrity:** This rule proclaims that each row in a table must contain some unique data. See additional material for integrity rules here.

14	**C**	☐	The reference between a primary and foreign key is how tables in a database are connected and can ensure that changes in one area of the database can be propagated to others.
15	**B**	☐	The two-dimensions we are referring to in this context are the columns and rows (or X and Y axis if you are thinking mathematically).
16	**C**	☐	Review components of a Relation Schema here.
17	**C**	☐	ORDER BY applies sorting to your statement's ***output***. zyBooks Link
18	**D**	☐	Rules for a primary key are that they are Unique and Not Null. zyBooks Link
19	**B**	☐	Common attributes are properties or characteristics (i.e. fields) shared by two or more tables. Read more on attributes here.
20	**C**	☐	The Join clause facilitates the connection of two table through identification of a common attribute. zyBooks Link
21	**A**	☐	See explanation for question 18.
22	**C**	☐	The reference of a foreign key in one table to the primary key in another links those tables together. zyBooks Link
23	**A**	☐	Data redundancy creates more opportunity to introduce errors into the data base, increased storage needs, and reduces query performance. zyBooks Link
24	**A**	☐	Review Superkeys here.
25	**D**	☐	Foreign keys must include a reference to another table's primary key. zyBooks Link
26	**D**	☐	The conceptual model is developed during the Analysis Phase of database design. zyBooks Link
27	**B**	☐	Derived attributes are calculated using stored values rather than stored themselves. Read more on attributes here.
28	**B**	☐	Read more about Entity-Relationship models in zyBooks. Link

29	**C**	☐	In a relational model, attribute is the formal term for a column (link), and a composite consists of multiple columns. zyBooks Link
30	**B**	☐	An Atomic Attribute is another term for Simple Attribute, which refers to a single value and cannot be broken down further. See more about atomic attributes here.
31	**A**	☐	Read more about Dependent and Independent Entities here.
32	**C**	☐	Unary means 1, Binary means 2, and **Ternary means 3**, which is also how many entities exist in each type of relationship. zyBooks Link
33	**A**	☐	A domain is a collection of rules that describe available values for a field type. Read more about attribute domains here.
34	**C**	☐	The underlined values represent the two columns in a *Composite Primary Key* for this table. Read more about MySQ table descriptions here.
35	**A**	☐	1NF has the fewest requirements and is the most basic level of normalization. See additional resources on Normalization here.
36	**C**	☐	2NF is a more strict form of normalization than 1NF. See additional resources on Normalization here.
37	**D**	☐	Data redundancy can result in the same data needing to be updated in multiple locations, introducing more opportunity to violate data integrity. zyBooks Link
38	**D**	☐	***Normal forms*** are rules for designing tables with less redundancy. zyBooks Link
39	**B**	☐	Partial dependency in a relational database occurs when a non-prime attribute (i.e., not part of any candidate key) is functionally dependent on only a part of the primary key, rather than the entire primary key. zyBooks Link
40	**A**	☐	PROJ_NUM --> PROJ_NAME shows a *non-key* field dependent on only one of two fields in the table's **composite primary key**, resulting in a partial dependency. Read more on Partial Dependency here.
41	**C**	☐	1NF requires each column to have a unique name and each cell to only contain a single value. zyBooks Link

42	**A**	☐	INSERT INTO is the **Data Manipulation Language (DML)** clause to add data to a table. zyBooks Link
43	**D**	☐	UPDATE is the **Data Manipulation Language (DML)** clause to modify data in a table. zyBooks Link
44	**B**	☐	Using the Wildcard character ***** in a SELECT statement returns all values that satisfy the conditions of the statement. zyBooks Link

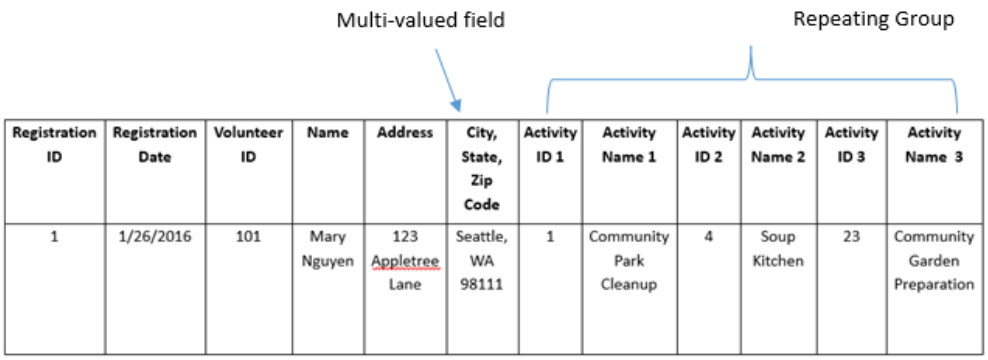
45	**D**	☐	`UPDATE TableName`
			`SET Column1 = Value1, Column2 = Value2, ...`
			`WHERE condition;`

46	**A**	☐	`DELETE FROM TableName` `WHERE condition;`

47	**C**	☐	`SELECT Expression1, Expression2, ...`
			`FROM TableName`
			`WHERE Condition;`

48	**B**	☐	The proper syntax to select the specific values in this question is WHERE V_CODE <=21344. See a list of SQL operators here.
49	**A**	☐	Single quotes are required on dates as the **–** symbol is a reserved operator for arithmetic functions. See a list of datatypes here.
50	**D**	☐	The proper syntax in this question is a combination of both conditions using an **OR** operator. See a list of SQL operators here.
51	**B**	☐	Retrieving matching fields requires an **=** operator. zyBooks Link
52	**C**	☐	The LIKE operator combined with wildcard characters can evaluate string values. zyBooks Link
53	**A**	☐	DROP is the Data Definition Language statement to remove a table from the database. zyBooks Link

54	**A**	☐	UPDATE is the Data Definition Language statement to change data in a table and requires a SET statement to identify new values. zyBooks Link
55	**C**	☐	FULL JOIN is the only join which returns unmatched data from both tables in the statement. zyBooks Link
56	**A**	☐	During the transformation step, a series of rules or functions is applied to the extracted data and can involve transformation such as data summations, data encoding, data merging, data splitting, data calculations, and create of surrogate keys. Read more about the ETL process here.
57	**B**	☐	The loading component of Extract, Transform, Load (ETL) process is centered on moving the transformed data into the data warehouse. The critical issues include the following: • Target dependencies, such as where and on how many machines the repository lives, and the specifics of loading data into that platform. • Refresh volume and frequency, such as whether the data warehouse is to be loaded on an incremental basis, whether data is forwarded to the repository because of triggered transaction events, or whether all the data is periodically loaded into the warehouse in the form of a full refresh. Read more about the ETL process here.
58	**D**	☐	In the Teachers table the address fields are related to the Campus field instead of the Primary Key **TeacherID**. Moving those fields to a new table which uses **Campus** as a primary key and the making the campus field in the Teachers table reference that would results in 3rd normal form. Read more about normal forms here.
59	**B**	☐	When referring to cells that contain no data the proper operator is **IS NULL**. zyBooks Link
60	**C**	☐	Since StudentID and InstructorID are forgeign keys and there are no other unique values in the table it's necessary to combine fields in a way that will return a unique value and constitute a Composite Primary Key. zyBooks Link

61	**D**	☐	To connect these tables, including the InstructorID would be a viable foreign key in the Course table. zyBooks Link
62	**C**	☐	Structured data is data that has a standardized format and can be effectively processed to generate information. Read more about structured data here.
63	**A**	☐	A single table makes this a Unary relationship, and the outer icons on the relationship indicate a max of 1 on one side and a max of Many on the other. Review crow's foot notation here.
64	**C**	☐	Because the scenario states that each mentor can only have one agent, and each agent can only have one mentor with both the mentor and agent contained on the same table, the relationship is a Unary one-to-one.
65	**A**	☐	Modality is a description of the **minimum** number of values on one side of a relationship. zyBooks Link
66	**A**	☐	Because this table contains multiple non-unique rows it does not satisfy the criteria for any normal forms. zyBooks Link
67	**A**	☐	You can tell that this table has not been normalized at all because there are repeating groups and there is a multivalued field. zyBooks Link 

Registration ID	Registration Date	Volunteer ID	Name	Address	City, State, Zip Code	Activity ID 1	Activity Name 1	Activity ID 2	Activity Name 2	Activity ID 3	Activity Name 3
1	1/26/2016	101	Mary Nguyen	123 Appletree Lane	Seattle, WA 98111	1	Community Park Cleanup	4	Soup Kitchen	23	Community Garden Preparation

68	**C**	☐	The table is in 2NF. There is a transitive dependency on Coordinator ID. This must be resolved for the table to be in 3NF. zyBooks Link **Activity ID** | Activity Name | Activity Date | Time | Location | Coordinator ID | Coordinator Name | Coordinator Phone Number 1 | Community Park Cleanup | 2/13/16 | 10am – 3pm | Clover Community Park | 55 | Joan Adams | (206) 555-1313 4 | Soup Kitchen | 2/15/16 | 2pm – 8pm | Jasmine Community Center | 11 | Alison Chang | (206) 555-5353 23 | Community Garden Prep | 4/20/16 | 10am – 4pm | Clover Community Park | 32 | George Prasad | (253) 555-1111 27 | Community Garden Planting | 4/21/16 | 10am – 4pm | Clover Community Park | 32 | George Prasad | (253) 555-1111
69	**B**	☐	This table is still in 1NF, because of the existence of partial dependencies. Item Name and Item Price are partially dependent on Item Number. Date, Patron Number, and Last Name are dependent on Invoice Number. zyBooks Link **Invoice Number** | **Item Number** | Date | Patron Number | Last Name | Item Name | Item Price | Number of Pounds 1 | NB01 | 2016-01-05 | 101 | Wu | Nature Blends Dog Food | 8.00 | 20 1 | NB02 | 2016-01-05 | 101 | Wu | Nature Blends Dog Treats | 10.00 | 5 1 | NB03 | 2016-01-05 | 101 | Wu | Nature Blends Dental Chews | 12.50 | 30 1 | NB04 | 2016-01-05 | 101 | Wu | Nature Blends Vitamins | 22.00 | 5 2 | NB04 | 2016-03-05 | 193 | Jones | Nature Blends Vitamins | 22.00 | 2

Additional Study Resources

Full SQL Tutorial	• Geeks for Geeks • W3 Schools
Database Core Concepts	• Text material • Video
Entity Relationships	• Text material 1 • Text material 2 • Video 1 • Video 2 (WGU Instructor led)
Normal Forms	• Text material • Video 1 • Video 2 (WGU Instructor led)
Joins	• Text Material
Syntax	• Flash Cards
Additional Videos	• Dr. Soper • LinkedIn Learning