

OBJECTIVE TYPES QUESTIONS

DBMS

1.. Mechanism developed to enforce users to enter data in required format is:

- a. Data validation
- b. Input mask
- c. Criteria
- d. Data verification

2. The raw facts and figures are:

- a. Data
- b. Information
- c. Snapshot
- d. Reports

3. The feature that database allows to access only certain records in database is:

- a. Forms
- b. Reports
- c. Queries
- d. Tables

4. Which filter method lets you filter the records that match the selected field?

- a. Filter by form
- b. Filter by selection
- c. Auto filter
- d. Advanced filter

5. Which filter method lets you filter records based on criterion you specify?

- a. Filter by form
- b. Filter by selection
- c. Auto filter
- d. Advanced filter

6. You can find Sort & Filter group of commands in

- a. Home ribbon
- b. Create ribbon
- c. Database tools ribbon
- d. Fields ribbon

7. Which of the following filter method is not available in Access?

- a. Filter by selection
- b. Filter by form
- c. Advanced filter
- d. None of above

8. By Grouped Report you understand

- a. Type of report generated by the Report Wizard
- b. Type of report that present records sorted in ascending or descending order as you specify
- c. Type of report that displays data grouped by fields you specified
- d. None of above

9. The text you typed in Description column in Table Design View is displayed on

- a. Description bar in forms
- b. Report Footer when printed
- c. Title bar of MS Access while entering data
- d. Status bar while entering data

10. What is the maximum allowed field size for Boolean (Yes/No) fields?

- a. 1
- b. 8
- c. 50
- d. 255

11. What is the size of Data & Time field type?

- a. 1
- b. 8
- c. 255
- d. 50

12. Which of the following field type can store maximum data?

- a. Yes/No fields
- b. Date/Time fields
- c. Text fields
- d. Memo fields

13. To display associated record from related table in datasheet view, you can

- a. Double click the record
- b. Apply filter by form command
- c. Single click on expand indicator (+) next to the record
- d. Double click on expand indicator (+) next to the record

14. Arrange according to the size

- a. Record, field, byte, bit
- b. Bit, field, byte, record
- c. Field, byte, record, bit
- d. Byte, bit, record, field

15. What type of relationship exists between a Student table and Fees table?

- a. One to one
- b. One to many
- c. Many to many
- d. One to many and many to many

16. Identify the relationship between a Movie table and Stars table:

- a. One to one
- b. One to many
- c. Many to many
- d. None of above

17. What type of relationship exists between a Teacher table and Class table?

- a. One to many

- b. Many to many
- c. One to one
- d. Two to two

18. Which of following relationship type is not possible to realize in Access Database directly?

- a. One to one
- b. One to many
- c. Many to many
- d. None of above

19. For which kind of relationship you need a junction table to reflect real world situation?

- a. One to one
- b. One to many
- c. Many to many
- d. None of above

20. What do you need if you should enforce many-to-many relationship between two tables?

- a. Parent table
- b. Child table
- c. Junction table
- d. Many-to-many relationship can't be created in database

21. You can display data from multiple tables by using

- a. Page break
- b. Sub form

- c. Columnar form
- d. Tabular form

22. What is the best data type for a field that stores mobile numbers?

- a. Text
- b. Number
- c. Date/Time
- d. Memo

23. What field type is best to store serial numbers?

- a. Number
- b. AutoNumber
- c. Text
- d. Memo

24. Which of the following field type is used to store photograph of employees?

- a. Memo
- b. Picture
- c. OLE
- d. Photo

25. Which of the following method can be used to add more tables in a database?

- a. Design View
- b. Table Wizard
- c. By Entering Data

d. All of above

26. From which version Microsoft introduced Backstage View for Access Interface?

a. Access 2003

b. Access 2007

c. Access 2010

d. Access does not have Backstage View

27. You can display Backstage View by clicking on

a. File menu

b. Home tab

c. Control box

d. Quick Access Toolbar

28. Why do you pin an item in list?

a. To mark it to delete from list

b. To move it up and make it always available

c. To make it default database when you open Access

d. None of above

29. The options like Save, Open Database, Print are available in

a. Home tab

b. Backstage View tab

c. File menu

d. Database Tools tab

30. What is relational database?

- a. A place to store relational information
- b. A database that is related to other databases
- c. A database to store human relations
- d. None of above

31. The advantage of computerized database over manual database is

- a. We can get the information our quick
- b. We can put in information quick
- c. Solve the repeated information and consistency problem
- d. All of above

32. Circular button with Office icon in it is

- a. Control box
- b. Office box
- c. Company box
- d. Control menu box

33. Group names in ribbon can be helpful to

- a. Group the commands so that when you move one, you can move all of them together
- b. Give a name for buttons on ribbon
- c. Find the required option by inspecting through them
- d. All of above

34. The options like Relationship, SQL Server etc. are found in

- a. External data tab
- b. Database tools tab
- c. Create tab
- d. Home tab

35. Navigation pane is placed on

- a. The left of Access workspace
- b. The right of Access workspace
- c. Just below the Access workspace
- d. Just above the status bar

36. You can filter the display of different Access objects in navigation pane from

- a. View tab in ribbon
- b. Drop down menu at the top of navigation pane
- c. Sort & Filter group in Home menu
- d. Database tab

Question 1:

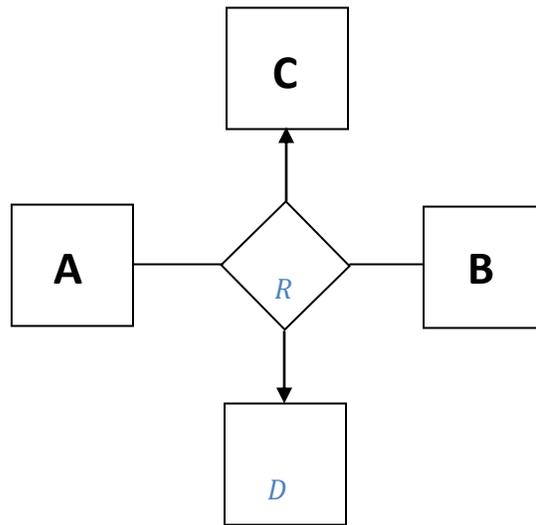
Consider a relation $R(A,B,C,D,E)$ with the following functional dependencies:

$$ABC \rightarrow DE \text{ and} \\ D \rightarrow AB.$$

The number of superkeys of R is:

- (a) 2
- (b) 7
- (c) 10 *****
- (d) 12

Question 2: Consider the following E/R diagram:



Below are three possible relationship sets for this E/R diagram:

	A	B	C	D
I.	a_1	b_1	c_1	d_1
	a_1	b_1	c_1	d_2

	A	B	C	D
II.	a_1	b_1	c_1	d_1
	a_1	b_1	c_2	d_2

	A	B	C	D
III.	a_1	b_1	c_1	d_1
	a_1	b_2	c_1	d_1

You may assume that different symbols stand for different values, e.g., d_1 is definitely not equal to d_2 . Which of the above could **not** be the relationship set for the E/R diagram?

- (a) **I** only *****
- (b) **I** and **II** only

- (c) II only
- (d) I, II and III.

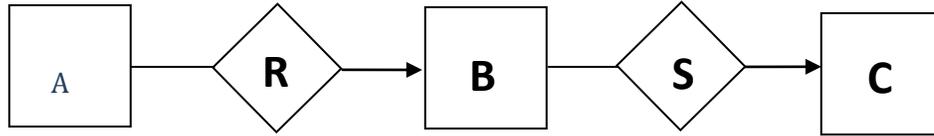
Question 3: One of the following four expressions of relational algebra is not equivalent to the other three. They are all based on the relations $R(A,B)$ and $S(B,C)$. Indicate which is not equivalent to the others.

- (a) $\pi_{AB}(R \bowtie S)$
- (b) $R \bowtie \pi_B(S)$
- (c) $R \cap (\pi_A(R) \times \pi_B(S))$
- (d) $\pi_{A,R,B}(R \times S)$ *****

Question 4: Of the following three equivalence's between expressions of relational algebra, each involving relations $R(A,B)$ and $S(C,D)$ (note the schema of S is different from that of the question above), which is true?

- (a) $\pi_{A,B}(R \times S) = R$
- (b) $R - \rho_{T(A,B)}(S) = \rho_{T(A,B)}(S - \rho_{U(C,D)}(R))$
- (c) $\pi_{A,B,D}(R \bowtie S) = R \bowtie \rho_{T(B,D)}(S)$ *****
- (d) none of the above (i.e., they are all false)

Question 5: Below is an E/R Diagram:



Indicate which of the ODL specifications best mimics the intent of this E/R diagram. In both E/R and ODL, we have omitted mention of all attributes, which you may thus ignore.

- (a) Interface A {relation Set R inverse B::R;};
 Interface B {relation Set<A> R inverse A::R;};
 relation Set<C> S inverse C::S;};
 Interface C {relation Set R inverse B::S;};

- (b) Interface A {relation B R inverse B::R;};
 Interface B {relation Set<A> R inverse A::R;};
 relation C S inverse C::S;};
 Interface C {relation Set S inverse B::S;}; *****

- (c) Interface A {relation set R inverse B::R;};
 Interface B {relation A R inverse A::R;};
 relation Set<C> S inverse C::S;};
 Interface C {relation B S inverse B::S;};

- (d) Interface A {relation B R inverse B::R;};
 Interface B {relation A R inverse A::R;};
 relation C S inverse C::S;};
 Interface C {relation B S inverse B::S;};

The following 4 questions are based on a relation

Emps(empID, ssNo, name, mgrID)

giving for a set of employees their employee ID (assumed unique), their social-security number (also unique), the name of the employee (not necessarily unique, and the employee ID of the manager of the employee. Assume that the president is his/her own manager, so every employee has a unique manager. You may assume there are no duplicate tuples in this relation.

Question 6: Here are two possible ways to declare the relation Emps.

- I. CREATE TABLE Emps (
empID INT,
ssNo INT,
name CHAR(50),
mgrID INT,
UNIQUE (empID),
PRIMARY KEY (ssNo),
FOREIGN KEY mgrID REFERENECES Emps (empID)
);
- II. CREATE TABLE Emps (
empID INT PRIMARY KEY,
ssNo INT UNIQUE,
name CHAR(50),
mgrID INT REFERENECES Emps (empID)
);

Which, if any, of the two declarations above will correctly (in SQL2) declare the relation Emps?

- (a) Both **I** and **II**
- (b) **I** only
- (c) **II** only *****
- (d) Neither **I** nor **II**

Question 7: Suppose we wish to find the ID's of the employees that are managed by people who are managed by the employee with ID 123. Here are two possible queries:

- I.

```
SELECT ee.empID
FROM Emps ee, Emps ff
WHERE ee.mgrID = ff.empID AND ff.mgrID = 123;
```
- II.

```
SELECT empID
FROM Emps
WHERE mgrID IN
(SELECT empID FROM Emps WHERE mgrID = 123);
```

Which, if any, of the two queries above will correctly (in SQL2) get the desired set of employee ID's?

- (a) Both **I** and **II** *****
- (b) **I** only
- (c) **II** only
- (d) Neither **I** nor **II**

Question 8: Suppose we wish to find the ID's of the employees who do *not* manage any employee named "Sally." Here are two possible queries:

- I.

```
SELECT mgrID
FROM Emps
WHERE NOT EXISTS(SELECT * FROM Emps WHERE NAME = 'Sally');
```
- II.

```
SELECT mgrID
FROM Emps
WHERE NOT (empID = ANY(SELECT EmpID FROM Emps WHERE name =
'Sally'));
```

Which, if any, of the two queries above will correctly (in SQL2) get the desired set of employee ID's?

- (a) Both **I** and **II**
- (b) **I** only
- (c) **II** only
- (d) Neither **I** nor **II** *****

Question 9: We wish to assert that no one can manage more than 10 employees. Here are two possible SQL2 assertions:

- I. CREATE ASSERTION I CHECK(NOT EXISTS(
 SELECT mgrID
 FROM Emps
 GROUP BY mgrID
 HAVING COUNT(*) > 10
));

- II. CREATE VIEW mgrCounts AS
 SELECT mgrID, COUNT(*) AS cnt FROM Emps GROUP BY mgrID;

CREATE ASSERTION II CHECK(10 >=
 (SELECT MAX(cnt) FROM mgrCounts);

Which, if any, of the two queries above will correctly (in SQL2) get the desired set of employee ID's?

- (a) Both **I** and **II** *****
- (b) **I** only
- (c) **II** only
- (d) Neither **I** nor **II**

Question 10:

Consider the following relation:

Family(parent, child, childDOB)

The intent is that a tuple (p,c,d) means that parent p has child c , who was born on date d . You may assume that parents do not have two children of the same name, and that there are no twins; i.e., no parent has two or more children born on the same day. Here are three queries we might ask about this data:

- I. Find for each parent, the youngest child, i.e., the set of (p,c) such that p has child c , and no other child of p has a smaller date of birth than c does.
- II. Find the set of great grandparents of "Amy."
- III. Find all the descendants of "Mike."

Which of the above queries are expressible in relational algebra?

- (a) **I** only.
- (b) **I** and **II** only. *****
- (c) **III** only.
- (d) **I, II** and **III**.

Question 11:

Suppose relation $R(A,B)$ currently has tuples $\{(1,2), (1,3), (3,4)\}$ and relation $S(B,C)$ currently has $\{(2,5), (4,6), (7,8)\}$. Then the number of tuples in the result of the SQL query:

```
Select *  
From R Natural Outer Join S;
```

is:

- (a) 2
- (b) 4 *****
- (c) 6
- (d) non of the above

Question 12:

If $\cap, \cup, -$ are given their bag interpretations, which of the following laws hold?

- (a) $R \cup R = R$
- (b) $R \cap (S \cup T) = (R \cap S) \cup (R \cap T)$
- (c) $R \cup (S - T) = (R \cup S) - T$
- (d) None of the above *****

Question 13:

Suppose relation $R(A,B,C,D,E)$ has the following functional dependencies:

$A \rightarrow B$
 $B \rightarrow C$
 $BC \rightarrow A$
 $A \rightarrow D$
 $E \rightarrow A$
 $D \rightarrow E$

Which of the following is *not* a key?

- (a) A
- (b) E
- (c) B,C *****
- (d) D

Question 14:

Consider the following SQL query on the relation $R(A,B)$ that has no NULL's.

```
Select rr.A, rr.B,ss.A, ss.B
From R as rr, R as ss
Where rr.A = ss.A and rr.B = ss.B
```

Suppose that R has n tuples (not necessarily all distinct). Which of the above conditions is the most restrictive correct limitation on m , the number of tuples (again not necessarily all distinct) in the result?

- (a) $n \leq m \leq n*n$ *****
- (b) $n \leq m \leq 2n$
- (c) $0 \leq m \leq n$
- (d) $m = n$

Question 15:

Suppose now that $R(A,B)$ and $S(A,B)$ are two relations with r and s tuples, respectively (again, not necessarily distinct). If m is the number of (not necessarily distinct) tuples in the result of the SQL query:

$R \text{ intersect } S;$

Then which of the following is the most restrictive, correct condition on the value of m ?

- (a) $m = \min(r,s)$
- (b) $0 \leq m \leq r + s$
- (c) $\min(r,s) \leq m \leq \max(r,s)$
- (d) $0 \leq m \leq \min(r,s)$ *****

Question 16: (24 Points)

In this and the following questions you shall write queries in SQL and relational algebra over the following example database:

Beer(name, manf)
Bars(name, addr, license)
Drinkers(name, addr, phone)
Likes(drinker, beer)
Sells(bar, beer, price)
Frequents(drinker, bar)

This question is devoted to SQL queries, database modifications, and declarations. Write the following in standard SQL2, being as succinct as possible.

a) Find the name and address of all drinkers who frequent Joe's Bar and like some Beer that Joe's Bar sells. Do not print any drinker more than once.

```
SELECT DISTINCT D.name, D.addr
FROM Drinkers AS D, Frequents AS F, Likes AS L, Sells AS S
WHERE D.name = L.drinker AND
      D.name = F.drinker AND
      S.beer = L.beer AND
      S.bar = F.bar AND
      S.bar = 'Joe's Bar'
```

a more succinct query would look like

```
SELECT DISTINCT D.name, D.addr
FROM Drinkers AS D,
      ((Frequents NATURAL JOIN Likes) NATURAL JOIN Sells) AS F
WHERE D.name = F.drinker AND
      F.bar = 'Joe's Bar'
```

b) Delete from Drinkers table all drinkers in the 949 area code. You may assume that phone numbers are represented by character strings of the form '(xxx) yyy-zzzz', where xxx corresponds to the area code.

```
DELETE FROM Drinkers
WHERE phone LIKE '(650) ____-____'
```

phone LIKE '(650)%' also got full credit

- c) Find for each price (that appears in Sells) the number of bars that serve at least one beer at that price.

```
SELECT price, COUNT(DISTINCT bar)
FROM Sells
GROUPBY price
```

- B: Using SELECT in the FROM clause -2
C: Not using DISTINCT -1
D: Unnecessary join with an irrelevant relation -2

- d) Declare an assertion that says no drinker can frequent a bar with the same address as the drinker.

```
CREATE ASSERTION DoesnotDrinkAtHome CHECK
(NOT EXISTS
(SELECT *
FROM Drinkers AS D, Frequents AS F, Bars AS B
WHERE D.name = F.drinker AND
      F.bar = B.name AND
      D.addr = B.addr))
```

- e) Write a declaration of the Bars relation, including the fact that name is a key, the default address is 'unknown', and the license value can only be one of the strings 'beer' and 'full'. Use appropriate data types for the attributes.

```
CREATE TABLE Bars (  
    name VARCHAR(20) PRIMARY KEY,  
    addr VARCHAR(127) DEFAULT 'who knows?',  
    license CHAR(4) CHECK (licence IN ('full', 'beer'))  
)
```

- B: Using something other than CHAR(4) for license -1
C: Not marking PRIMARY KEY or UNIQUE -2
D: Not putting the constraint for license -2

- f) Insert into Bars (with default values for address and license) all those bars that are mentioned in Frequent but not in Bars.

```
INSERT INTO Bars(name)  
    SELECT DISTINCT bar  
    FROM Frequent  
    WHERE bar NOT IN (SELECT name FROM Bars)
```

- B: Not using DISTINCT for bar -1
C: Adding own default values -1

Question 17: (20 Points)

Using the same beer schema as in Problem above:

Beer(name, manf)
Bars(name, addr, license)
Drinkers(name, addr, phone)
Likes(drinker, beer)
Sells(bar, beer, price)
Frequents(drinker, bar)

Write the following in relational algebra. You may, if you wish, break complex expressions into steps by defining temporary relations.

- a) Find all pairs of drinkers (i.e., their names) that have the same address. Produce the pair in only one order; e.g., if you produce (a,b) , do not also produce (b,a) . (4 points)

D1(name1, addr, phone1) := Drinkers(name, addr, phone)

D2(name2, addr, phone2) := Drinkers(name, addr, phone)

Ans(name1, name2) := SIGMA_{name1<name2}(D1 JOIN D2)

- b) Find all the bars mentioned in both Sells and Frequents, but not in Bars. (4 points)

BBars(bar) := PI_{name}(Bars)

Ans(bar) := PI_{bar}(Frequents) INTERSECT PI_{bar}(Sells) - BBars

c) Find all the bars that serve only beers that drinker "Sally" likes. (4 points)

$SallyLikes(beer) := \pi_{\{beer\}}(\sigma_{\{drinker = 'Sally'\}}(Beers \text{ JOIN } Likes))$

$NotSallyLikes(beer) := \pi_{\{beer\}}(Sells) - SallyLikes$

$Ans(bar) := \pi_{\{bar\}}(Sells) - \pi_{\{bar\}}(Sells \text{ JOIN } NotSallyLikes)$

d) Find the drinkers that frequent no bar that serves a beer that they like. (8 points)

$A = \pi_{\{drinker\}}(Likes \text{ (NATURAL JOIN) } Sells \text{ (NATURAL JOIN) } Frequent)$

$Answer = \pi_{\{drinker\}}(Frequent) - A$

Question 18: (10 Points)

Consider the simple relation Employee(ID, salary) storing the employee IDs and salaries, where ID is a key. Consider the following two triggers over this relation:

```
create trigger T1
after insert on Employee
referencing new as New_Emp
update Employee
    set salary = 1.1 * (select max(salary) from Employee)
    where ID = New_Emp.ID
for each row
```

```
create trigger T2
after insert on Employee
referencing newtable as New_Emp
update Employee
    set salary = 1.1 * (select max(salary) from Employee)
    where ID in (select ID from New_Emp)
for each statement
```

Assume that relation Employee has no tuples in it initially. You are to show the simplest example you can think of where using trigger T1 will produce a different final database state than using trigger T2.

- a) Show a sequence of inserted tuples. For purposes of the example, assume that all tuples are inserted as the result of the single SQL statement. (2 points)

Lets say we had inserted the following four rows into the Employee table :

1	1000
2	2000
3	3000
4	4000

- b) Show the final database state after trigger execution if only trigger T1 is defined. (4 points)

In case of Trigger 1 , since the trigger operates after every row insert operation we get the following state:

For T1 execution final state of Employee :

1	1100
2	2200
3	3300
4	4400

c) Show the final database state after trigger execution if only trigger T2 is defined. (4 points)

Trigger2 executes after all the insert statements have been executed , and the final state of the Employee table is :

1	4400
2	4400
3	4400
4	4400

Question 19: (8 points)

Consider the following SQL declarations:

Create table Employee (ID integer unique, salary integer, dept# integer)

Create table Department (number integer unique, salaryCap integer)

Create assertion Policy check(

Not exists (select *

From Employee, Department

Where Employee.dept# = Department.number

And Employee.salary > Department.salaryCap))

a) State in English the policy enforced by the assertion Policy. (3 points)

The above trigger states that after any insertion or update on the Employee or the Department table, there should not be any employee having a salary greater than the salary Cap in the corresponding department of the employee.

b) Rewrite the above table declarations to use relation-based check constraints instead of the general assertion. Your constraints should be defined so that under no circumstances can the policy be violated. Remember you will be graded for simplicity as well as correctness. (5 points)

In the employee table define the following tuple based check constraint:

```
CHECK ( salary < (Select salaryCap from Department
                where Department.number=dept#) )
```

In the department table add the following check constraint :

```
CHECK ( salaryCap > ALL (Select salary from Employee
                        where Employee.dept#=number) )
```

Question 20: (10 points)

Suppose relation $R(A,B,C,D,E)$ has functional dependencies:

$$AB \rightarrow C$$

$$D \rightarrow A$$

$$AE \rightarrow B$$

$$CD \rightarrow E$$

$$BE \rightarrow D$$

Find all the candidate keys of R .

$$CD \rightarrow E$$

$$CD \rightarrow D \rightarrow A$$

$$CD \rightarrow A$$

$$CD \rightarrow ACDE$$

This implies $CD \rightarrow AE \rightarrow B$

Thus $CD \rightarrow ABCDE$

CD is a candidate key

$$BE \rightarrow D \rightarrow A$$

$$\Rightarrow BE \rightarrow AD$$

$$\Rightarrow BE \rightarrow ABDE$$

Since $AB \rightarrow C$ and $BE \rightarrow AB$

Thus $BE \rightarrow C$

$$\Rightarrow BE \rightarrow ABCDE$$

BE is a candidate key .

$$AE \rightarrow B$$

$$\Rightarrow AE \rightarrow BE$$

$$\Rightarrow AE \rightarrow D \text{ since } BE \rightarrow D$$

$$\Rightarrow AE \rightarrow ABDE$$

$$\Rightarrow AE \rightarrow C \text{ since } AE \rightarrow AB \text{ and } AB \rightarrow C$$

$$\Rightarrow AE \rightarrow ABCDE$$

Thus AE is also a candidate key

D -> A

- ⇒ BD -> AB
- ⇒ BD -> C since AB -> C
- ⇒ BD -> ABCD
- ⇒ BD -> E since BD -> CD and CD ->E
- ⇒ BD -> ABCDE

Thus BD is a candidate key

similarly DE is also a candidate key ..

(C)1. What is the component of a DBMS that is responsible for storing, retrieving, and updating data?

- A)data dictionary B)data management engine C)database engine D)query engine

(B)2. The tool which assists in generating input screens is referred to as:

- A)data dictionary B)forms generator C)input screen tool D)report generator

(B)3. The ability to modify the data structure and not have to change the programs using that data is called:

- A)data dictionary B)data independence C)data integrity D)referential integrity

(B)4. Which of the following items is not a DBMS:

- A)Access B)Acrobat Reader C)Oracle D)SQL Server

(B)5. The database design that uses a hierarchical data structure, but incorporates multiple data entry points is called a:

- A)Hierarchical database B)Network database C)Object oriented database D)Relational database

(D)6. Which of the following is an extension of the Relational Database model?

- A)Hierarchical database B)Multidimensional database C)Network database D)Object oriented database

(D)7. What is the main strength of Relational Databases?

A)Ability to handle any type of data B)Defining objects provides for reuse of data definitions C)Ease of use D)Flexibility and efficiency in accessing data

(B)8. Which component of the database management system (DBMS) most affects the performance (speed)?

A)Data Storage Subsystem B)Database Engine C)Query Processor D)Security Subsystem

(C)9. Data integrity can be improved by which of the following means _____.

A)adding indexes B)entering appropriate terms into the data dictionary C)incorporating business rules when defining the data D)using inheritance

(C)10. The role of the query system is to:

A)present the data in a user friendly format B)provide data security C)retrieve and manipulate data D)support data integrity

(B)11. Which of the following items is not the advantage of a DBMS?

A)Data Independence B)Decentralized administration of the data C)Ease of application development D)Uniform security, privacy and integrity

(B)12. The term referring to a physical item existing in the real world that you want to track is called:

A)class B)entity C)object D)table

(A)13. Two different terms are used to describe the characteristics of interest for an entity. They are properties and:

A)attributes B)classes C)entities D)traits

(C)14. The term used for the functions and procedures that work on class data is:

A)attributes B)entity C)methods D)objects

(D)15. The database model that utilizes multiple tables interconnected through common attributes to store and manage information is called a:

A)Class Database B)Matrix Database C)Network Database D)Relational Database

(B)16. The process to properly define the database tables to provide flexibility, minimize redundancy, and ensure data integrity is called:

A)class diagram B)data normalization C)database design D)design rationalization

(A)17. The Unified Modeling Language (UML) is :

- A)a set of standards that address how information should be modeled
- B)international standard language used to develop databases
- C)language used for web enabled databases
- D)set of tools used to connect databases operating under different database systems

(B)18. If there is a relationship between two tables, this indicates that:

- A)information from both tables is always used together
- B)the data contained in the two tables are related to each other in some way
- C)the data from one table is inherited from the other table
- D)the structure of the one table is inherited from the other table

(A)19. An n-ary relationship is drawn using which symbol:

- A)a diamond
- B)a line with arrows showing direction
- C)a line without arrows showing direction
- D)a rectangle

(C)20. An aggregation association is drawn using which symbol:

- A)a line which loops back onto the same table
- B)small closed diamond at the end of a line connecting two tables
- C)small open diamond at the end of a line connecting two tables
- D)small triangle at the end of a line connecting the aggregated item and multiple component items

(D)21. A generalization association is drawn using which symbol:

- A)a line which loops back onto the same table
- B)small closed diamond at the end of a line connecting two tables
- C)small open diamond at the end of a line connecting two tables
- D)small triangle at the end of a line connecting the aggregated item and multiple component items

(A)22. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a student's schedule consists of multiple classes?

- A)aggregation association
- B)generalization association
- C)n-ary association
- D)reflexive association

(A)23. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model the different elements contained in each classroom (i.e., projection equipment, blackboard type, computer support, etc)?

- A)composition association
- B)generalization association
- C)n-ary association
- D)reflexive association

(B)24. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a course may be of different types (i.e., lectures, seminars, labs, independent study, field research, etc.)?

A)aggregation association B)generalization association C)n-ary association D)reflexive association

(C)25. Why is it a good idea to use special associations when drawing class diagrams?

A)It is necessary. It is impossible to draw some diagrams without using these special structures B) Specialized tools are available to create these special associations C)They convey more information about the underlying structure of the database, making them easier to understand D)They hide the detail concerning the database structure, making them easier to understand

(A)26. What is the special association that combines different items from multiple classes to build a new object?

A)composition association B)generalization association C)n-ary association D)reflexive association

(D)27. A generalization association supports inheritance, where:

A)higher level classes gain the properties and functions of the lower class B)lower level classes all have different properties and functions C)lower level classes all have the same properties and functions D)lower level classes gain the properties and functions of a higher class

(B)28. The process of defining and bundling all of the properties and functions into a class is called:

A)database design B)encapsulation C)inheritance D)polymorphism

(A)29. Missing data in a field:

A)is a null value B)is illegal C)will cause a warning D)will cause an error

(A)30. In a university environment, what is the appropriate multiplicity for an association linking courses with their list of pre-requisite courses? Focus on the numbers placed next to the 'Pre-requisite courses' side of the association.

A)0..* B)1..* C)0..1 D)1..1

(D)31. Which of the following statements is correct?

A)DBMS are inefficient at storing data, using significantly more disk space than would be done with traditional file based systems B)The object oriented database model is the most common database model in use today C)The purpose of class diagrams is to model the events and the methods they evoke in the database D)Network database systems tend to be more flexible in their ability to access data than Hierarchical database systems.

(D)32. Which of the following statements is not correct?

A)Data normalization minimizes data redundancy B)There can only be a single primary key defined for each table C)Specifying a zero (0) for the lower bound for the association multiplicity on a class diagram indicates that the item is optional D)Specifying an asterisk (*) for the association multiplicity on a class diagram indicates that the item is required

(~~A~~ C)33. Which of the following statements is **not** correct?

A)Data normalization improves the data integrity of a database B)A reflexive association is a relationship from one class back to itself C)An entity is the database representation of a real world class D)Association generalization generates a class hierarchy

(~~X~~)34. Which of the following descriptions about relational data model is incorrect?

(A)Tuples can appear in any order and the relation will still be the same relation (B)This perception that the database is perceived by the user as tables applies only to the logical structure of the database (C)Each cell of the relation contains exactly one atomic value (D)There are no duplicate tuples (E)~~Relation schema is a set of relation schemas, each with a distinct name~~

(B)35. Which of the following descriptions is incorrect?

(A)An foreign key is an attribute, or set of attributes, within one relation that matches the candidate key of some relation (B)Data query language enables the DBA to define the data type (C)Data independence is essentially the separation of underlying file structures from the programs that operate on them. (D)Concurrency control service is a mechanism to make ensure that the database is updated correctly when multiple users are updating the database concurrently.

(D)36. Which of the following descriptions is incorrect?

(A)The benefit achieved with persistent objects provides a library of objects that can be easily reused when needed (B)Recovery services is a mechanism for recovering the database in the event that the database is damaged in any way (C)Conceptual level describes **what** data is stored in the database and the relationships among the data (**Conceptual, Implementation (or relational), Physical, figure 2.1, pp. 32**) (D)Data definition language (DDL) is a language

that allows the user to tell the system what data is needed and exactly **how** to retrieve the data.

(A)37. Which of the following descriptions is incorrect?

(A)The conceptual data model of a database covers the **physical implementation** of the database to achieve the optimal runtime performance and storage space utilization (B)A major objective for the three-level architecture is to provide data independence (C)A system catalog, or data dictionary, is a repository of information describing the data in the database (D)The method component of an object defines the actions of the object.

(C)38. Which of the following descriptions about relational data model is incorrect?

(A)Each cell of a table contains only one atomic value (B)A database is perceived by the user as tables (C)The information contained in a single class would be stored in a tuple (D)There are no duplicate tuples

(A)39. Which of the following descriptions is incorrect?

(A)Database administrator is the process of creating a set of tables to efficiently store data, minimize redundancy, and ensure data integrity (B)Aggregation association is a relationship where individual items become elements in a new class (C)Association is the connection between classes or entities (D)Composition association is a relationship in which an object is composed of a collection of other object.

(D)40. Which of the following descriptions is incorrect?

(A)Data dictionary is a repository of information describing the data in the database (B)A constraint is a rule that is enforced on the data (C)Data manipulation language is a set of commands used to alter the data in a database (D)Data flow diagram signifies the quantities involved in an association

(B)1. Software that defines a database, stores the data, supports a query language, produces reports and creates data entry screens is a:

A) data dictionary B) database management system (DBMS) C) decision support system
D) relational database

(C)2. The modern database report writer:

A) is a career path that focuses on creating, managing and supporting the reports generated from databases B) provide limited control over how information is displayed and reported.
C) provides the tools for database designer to display information in the desired format
D) provides the tools for the database administrator to monitor and report on database use and activity

(B)3. The separation of the data definition from the program is known as:

A) data dictionary B) data independence C) data integrity D) referential integrity

(D)4. In the client / server model, the database:

A) is downloaded to the client upon request B) is shared by both the client and server C)
resides on the client side D) resides on the server side

(A)5. The traditional storage of data that is organized by customer, stored in separate folders in filing cabinets is an example of what type of 'database' system?

A) Hierarchical B) Network C) Object oriented D) Relational

(D)6. The database design that consists of multiple tables that are linked together through matching data stored in each table is called a:

A) Hierarchical database B) Network database C) Object oriented database D)
Relational database

(B)7. What is the main limitation of Hierarchical Databases?

A) Limited capacity (unable to hold much data) B) Limited flexibility in accessing data
C) Overhead associated with maintaining indexes D) The performance of the database is poor

(D)8. An abstract data type is used to:

A) link data from remote databases B) prevent users from getting to database security information
C) provide a conceptual view of the data so it is easier to understand D) store complex data structure to represent the properties of objects

(B)9. One of the first phases of a new database project that involves critical areas, expensive hardware or software within the organization is called _____.

A) analysis phase B) feasibility study C) investigation stage D) system design

- (B)10. Which component of the database management system (DBMS) most affects the ability to handle large problems (scalability)?
- A) Data Storage Subsystem B) Database Engine C) Query Processor D) Security Subsystem
- (A)11. The primary difference between the Relational database (RDB) and Object Oriented database (OODB) models is:
- A) OODB incorporates methods in with the definition of the data structure, while RDB does not B) OODB supports multiple objects in the same database while RDB only supports a single table per database C) RDB allows the definition of the relationships between the different tables, while OODB does not allow the relationships to be defined between objects D) RDB supports indexes, while OODB does not support indexes
- (C)12. Which of the following items is not the advantage of a DBMS?
- A) Improved ability to enforce standards B) Improved data consistency C) Local control over the data D) Minimal data redundancy
- (D)13. The predominant way of storing data today is using which type of database models?
- A) Hierarchical B) Network C) Object oriented D) Relational
- (C)14. Two different terms are used to describe the characteristics of interest for an entity. They are attributes and:
- A) classes B) entities C) properties D) traits
- (B)15. When building a database, the data dealing with an entity is modeled as a:
- A) attribute B) class C) object D) table
- (A)16. Database system modelers use this type of diagram to graphically represent both the data structure and how the different objects are interrelated.
- A) Class Diagram B) Data Diagram C) Object Diagram D) Table Relationship Diagram
- (D)17. In relational database model, after conceptually designing your database, the information contained in a single class would be stored in a:
- A) database B) field C) property D) table
- (C)18. The property (or set of properties) that uniquely defines each row in a table is called the:
- A) identifier B) index C) primary key D) symmetric key

(A)19. Business rules can be represented in the database through:

A) associations (or relationships) B) attributes C) properties D) secondary keys

(A)20. The association role defines:

A) how tables are related in the database B) the relationship between the class diagram and the tables in the database C) the tables that each attribute is contained D) which attribute is the table's primary key

(C)21. The purpose of an N-Ary association is:

A) to capture a parent-child relationship B) to deal with one to many relationships C) to deal with relationships that involve more than two tables D) to represent an inheritance relationship

(B)22. A composition association is drawn using which symbol:

A) A line which loops back onto the same table B) Small closed diamond at the end of a line connecting two tables C) Small open diamond at the end of a line connecting two tables D) Small triangle at the end of a line connecting the aggregated item and multiple component items

(A)23. A reflexive association is drawn using which symbol:

A) a line which loops back onto the same table B) small closed diamond at the end of a line connecting two tables C) small open diamond at the end of a line connecting two tables D) small triangle at the end of a line connecting the aggregated item and multiple component items

(D)24. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a class may have multiple pre-requisites?

A) aggregation association B) generalization association C) n-ary association D) reflexive association

(A)25. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model degree requirements (i.e., required number of courses in humanity, science, math, etc)?

A) composition association B) generalization association C) n-ary association D) reflexive association

- (C)26. Assume you are creating a database to handle the data associated with instruction at a university. What is the most appropriate special association to model that a course has an assigned instructor, Teaching Assistants, a classroom, meeting time slot, and class roster?
- A) aggregation association B) generalization association C) n-ary association D) reflexive association
- (C)27. What is the most appropriate special association that indicates that multiple textbooks make up a course required reading list?
- A) aggregation association B) generalization association C) n-ary association D) reflexive association
- (B)28. What is the special association that indicates that one object can be broken down into multiple special cases?
- A) composition association B) generalization association C) n-ary association D) reflexive association
- (B)29. The ability to define common properties or functions in the higher class and then modify them in the lower classes is called:
- A) Inheritance B) Polymorphism C) Reflexive D) Transformance
- (D)30. A reflexive association is one where one class is:
- A) broken down into special cases B) combined with multiple other classes C) combined with one other class D) linked back to itself
- (C)31. Which of the following statements is not correct?
- A) A primary goal of a database system is to share data with multiple users B) It is possible to change a method or property inherited from a higher level class C) While companies collect data all the time, the structure of the data changes very often. D) In a client / server environment, data independence causes client side applications to be essentially independent of the database stored on the server side.
- (A)32. Which of the following statements is not correct?
- A) Data Normalization is the process of defining the table structure B) The purpose of class diagrams is to model the interrelationships between the different classes in the database C) Individual objects are stored as rows in a table D) Properties of an object are stored as columns in a table.
- (B)33. Which of the following statements is not correct?

A) The primary key must be unique for a given table B) Specifying a zero (0) for the lower bound for the association multiplicity on a class diagram indicates that the item is required
C) Specifying a one (1) for the lower bound for the association multiplicity on a class diagram indicates that the item is required D) Most databases allow multiple records that are identical (i.e., records that have the same values for all properties).

(B)34. Which of the following statements is not correct?

A) All many-to-many relationships must be converted to a set of one-to-many relationships by adding a new entity B) In a one-to-one relationship between two classes, the two classes are generally described by one table in relational database model C) Encapsulation provides some security and control features D) Properties and functions can be protected from other areas of the applications

FREQUENTLY ASKED QUESTION IN DBMS (PLACEMENT TYPE)

What Are The Different Views To Display A Table

- A) Datasheet View
- B) Design View
- C) Pivote Table & Pivot Chart View
- D) All Of Above

2. Which Of The Following Creates A Drop Down List Of Values To Choose From?

- A) Ole Object
- B) Hyperlink
- C) Memo
- D) Lookup Wizard

3. The Command Center Of Access File That Appears When You Create Or Open The Ms Access Database File.

- A) Database Window

- B) Query Window
- C) Design View Window
- D) Switchboard

4. The Third Stage In Designing A Database Is When We Analyze Our Tables More Closely And Create A _____ Between Tables

- A) Relationship
- B) Join
- C) Query
- D) None Of These

5. In A Database Table, The Category Of Information Is Called _____

- A) Tuple
- B) Field
- C) Record
- D) All Of Above

6. This Key Uniquely Identifies Each Record

- A) Primary Key
- B) Key Record
- C) Unique Key
- D) Field Name

7. It Is An Association Established Between Common

- A) Line
- B) Relationship
- C) Primary Key
- D) Records

8. This Is The Stage In Database Design Where One Gathers And List All The Necessary Fields For The Database Project.

- A) Data Definition
- B) Data Refinement
- C) Establishing Relationship
- D) None Of The Above

9. A Database Language Concerned With The Definition Of The Whole Database Structure And Schema Is _____

- A) DCL
- B) DML
- C) DDL
- D) All Of Above

10. Which Of The Field Has Width 8 Bytes?

- A) Memo
- B) Number
- C) Date/time
- D) Hyperlink

11. Which Of The Following Statement Is True?

- A) Foreign Key Fields Don't Allow Duplicate Values
- B) In Primary Key Field You Can Enter Duplicate Value
- C) In An Indexed Field You May Or May Not Enter Duplicate Value Depending Upon Setting
- D) All Statements Are True

12. Following Is Not A Database Model

- A) Network Database Model
- B) Relational Database Model
- C) Object Oriented Database Model

D) None

13. Microsoft Access Is A

- A) RDBMS
- B) OODBMS
- C) ORDBMS
- D) Network Database Model

14. DCL Provides Commands To Perform Actions Like

- A) Change The Structure Of Tables
- B) Insert, Update Or Delete Records And Data Values
- C) Authorizing Access And Other Control Over Database
- D) None Of Above

15. The Database Language That Allows You To Access Or Maintain Data In A Database

- A) DCL
- B) DML
- C) DDL
- D) None Of Above

16. What Is The Maximum Length A Text Field Can Be?

- A) 120
- B) 255
- C) 265
- D) 75

17. Which Of The Following Is Not A Database Object?

- A) Tables
- B) Queries
- C) Relationships
- D) Reports

18. A _____ Enables You To View Data From A Table Based On A Specific Criterion

- A) Form
- B) Query
- C) Macro
- D) Report

19. What Are The Columns In A Microsoft Access Table Called?

- A) Rows
- B) Records
- C) Fields
- D) Columns

20. Which Of The Following Is Not A Type Of Microsoft Access Database Object?

- A) Table
- B) Form
- C) Worksheets
- D) Modules

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Answers

1-D, 2-D, 3-A, 4-A, 5-B, 6-A, 7-B, 8-A, 9-C, 10-C, 11-C, 12-D, 13-A, 14-C, 15-A, 16-B, 17-C, 18-B, 19-C, 20-C,