

1. Which of the following are properties of a database?
 - a) It represents some aspect of the real world
 - b) It is a logically coherent collection of data with some inherent meaning
 - c) It is designed, built and populated with data for a specific purpose
 - d) All of the above

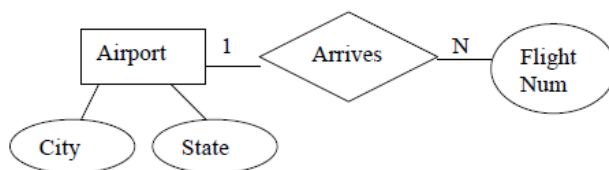
2. The information stored in the DBMS catalog is often referred to as
 - a) Application data
 - b) Meta-data
 - c) External data
 - d) Temporal data

5. Characteristics of a database system include
 - a) Providing security and authorization mechanisms
 - b) Providing storage structures for efficient query processing
 - c) Providing backup and recovery mechanisms
 - d) All of the above

14. Suppose we have a relationship type, R, that has a cardinality ratio of M to N, where the entity types involved are E1 with 2 instances and E2 with 3 instances. Also E1 and E2 have partial participation in R. What is the minimum and the maximum number of instances of the relationship type R?
 - a) A min of 2 and a max of 3
 - b) A min of 0 and a max of 6
 - c) A min of 0 and a max of 3
 - d) A min of 2 and a max of 6

15. Specialization in the Enhanced ER model is
 - a) The process of defining a set of superclasses of an entity type
 - b) The process of defining an entity type that contains the common features of a set of entity types
 - c) The process of defining a set of subclasses of an entity type
 - d) None of the above

18. What is wrong with this ER diagram?



1. a) Airport has no key
2. b) The relationship Arrives involves an attribute FlightNum instead of an entity
3. c) Both (a) and (b)
4. d) None of the above

1.D 2.B 5.D 14.B. 15.C 18.C

SECTION:_____ NAME:_____

CWID:_____

User

<u>Email</u>	<u>Password</u>	<u>Name</u>
leo@ua	abc	Mark
ed@ua	def	Omiecinski
rocky@ua	ghi	Dunlap
mary@ua	jkl	Dupond
lisa@ua	mno	Brown
sham@ua	pqr	Navathe

Jobs

<u>Email</u>	<u>Name</u>	<u>JobTitle</u>
ed@ua	UFL	Programmer
ed@ua	UA	Professor
rocky@ua	UA	Researcher
mary@ua	UA	Assistant
mary@ua	UFL	Director
mary@ua	IBM	President

Employer

<u>Name</u>
UA
UFL
IBM

RegularUser

<u>Email</u>	<u>Birthdate</u>	<u>Sex</u>	<u>Hometown</u>	<u>CurrentCity</u>
ed@ua	5/8/61	M	Fargo	Tuscaloosa
rocky@ua	5/9/87	M	Tuscaloosa	Roswell
mary@ua	5/7/60	F	Miami	Tuscaloosa
lisa@ua	4/2/88	F	Baltimore	Tuscaloosa

AdminUser

<u>Email</u>	<u>LastLogin</u>
leo@ua	9/8/10
sham@ua	10/1/10

The Email attribute is the **primary key** for the User, RegularUser, and AdminUser relations. The Email attribute in the RegularUser and AdminUser relations are **foreign keys** on the Email attribute in the User relation. The Email attribute in the Jobs relation is a **foreign key** on the Email attribute of the RegularUser attribute. Name is the **primary key** of the Employer relation. The combination of the Email, Name, and JobTitle attributes is the **key** of the Jobs relation. The Name attribute of the Jobs relation is a **foreign key** on the Name attribute of the Employer relation.

Notice and don't forget that the Name attributes of the Employer and Jobs relations both contain names of employers, whereas the Name attribute of the User relation contains names of Users.

Question 1. Which of the following is true?

- a) A relation, R, of degree, n, is a subset of the Cartesian product of a list of domains, $D_1 \times D_2 \times \dots \times D_n$, where a particular domain, D_i , may appear multiple times.
- b) All relations have at least one key.
- c) Two relations are equivalent if they contain the same set of tuples, regardless of the ordering of the tuples.
- d) All of the above.

Question 6. How many attributes are in the result of the SQL query: `SELECT * FROM RegularUser;`

- a) 0
- b) 1
- c) 4
- d) 5

Question 7. How many tuples are in the result of the SQL query: `SELECT DISTINCT CurrentCity FROM RegularUser;`

- a) 1
- b) 2
- c) 3
- d) 4

Question 9. How many tuples are in the result of the SQL query: `SELECT CurrentCity FROM RegularUser UNION SELECT Hometown FROM RegularUser;`

- a) 1
- b) 2
- c) 5
- d) 8

Question 10. How many attributes are in the result of the SQL query: `SELECT * FROM Employer, Jobs;`

- a) 0
- b) 1
- c) 3
- d) 4

Question 14. Which of the following ordered list is the result of the SQL query: `SELECT Email FROM Jobs ORDER BY Email;`

- a) <ed@ua>, <mary@ua>, <rocky@ua>
- b) <ed@ua>, <ed@ua>, <mary@ua>, <mary@ua>, <mary@ua>, <rocky@ua>
- c) <rocky@ua>, <mary@ua>, <ed@ua>
- d) <rocky@ua>, <mary@ua>, <mary@ua>, <mary@ua>, <ed@ua>, <ed@ua>

1.D. 6.D 7.B 9.C. 10.D 14.B