

Updated DBMS Unit 2- Question Bank

Database Management Systems (SRM Institute of Science and Technology)



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SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

Ramapuram Campus, Bharathi Salai, Ramapuram, Chennai - 600089

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



QUESTIONBANK

Degree & Branch	: B.TECH- CSE
Semester	: III/VI
Sub Code & Subject Name	: 18CSC303J- Database Management Systems
Regulation	: 2018
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QUESTION BANK

SUBJECT: **Subject Code:** 18CSC303J- Database Management Systems

SEM/YEAR: VI/III

Course Outcomes

CO1: CO2: CO3: CO4:

CO5:

Q. No.	Questions	Course Outcom e	Competence BT Level
1	A relational database consists of a collection of A. Tables B. Fields C. Records D. Keys	CO2	BT1
2	A in a table represents a relationship among a set of values. A. Column B. Key C. Row D. Entry	CO2	BT2

		G0.2	
	The term attribute refers to a of a table.	CO2	
	A. Record		
3	B. Column		BT1
	C. Tuple D. Key		
	D. Kty		
	A is a set of entities of the same type that share the same properties, or attributes.	CO2	
	A. Entity set		
4	B. Attribute set		BT1
	C. Relation set		
	D. Entity model		
	The attribute name could be structured as an attribute consisting of first name, middle initial, and last name. This type of attribute is called	CO2	
	A. Simple attribute		
5	B. Composite attribute		BT1
	C. Multivalued attribute		
	D. Derived attribute		
	The attribute AGE is calculated from DATE_OF_BIRTH. The attribute AGE is	CO2	
	A. Single valued		
6	B. Multi valued		BT1
	C. Composite		
	D. Derived		

7	In a relation between the entities the type and condition of the relation should be specified. That is called asattribute. A. Descriptive B. Derived C. Recursive D. Relative	CO2	BT2
8	An entity in A is associated with at most one entity in B, and an entity in B is associated with at most one entity in A. This is called as A. One-to-many B. One-to-one C. Many-to-many D. Many-to-one	CO2	ВТ3
9	An entity in A is associated with at most one entity in B. An entity in B, however, can be associated with any number (zero or more) of entities in A. A. One-to-many B. One-to-one C. Many-to-many D. Many-to-one	CO2	BT1
10	 Which of the following can be addressed by enforcing a referential integrity constraint? A. All phone numbers must include the area code B. Certain fields are required (such as the email address, or phone number) before the record is accepted C. Information on the customer must be known before anything can be sold to that customer D. Then entering an order quantity, the user must input a number and not some text (i.e., 12 rather than 'a dozen') 	CO2	BT1

	is a special type of integrity constraint that relates two relations & maintains consistency across the relations.	CO2	
	A. Entity Integrity Constraints		
11	B. Referential Integrity Constraints		BT1
	C. Domain Integrity Constraints		
	D. Domain Constraints		
	Which one of the following uniquely identifies the elements in the relation?	CO2	
	A. Secondary Key		
12	B. Primary key		BT2
	C. Foreign key		
	D. Composite key		
	is preferred method for enforcing data integrity	CO2	
	A. Constraints		
13	B. Stored Procedure		BT1
	C. Triggers		
	D. Cursors		
	Let us consider phone - number, which can take single or several values. Treating phone - number as a permits instructors to have several phone numbers (including zero) associated with them.	CO2	
14	A. Entity		BT1
	B. Attribute		211
	C. Relation		
	D. Value		

	Given the basic ER and relational models, which of the following is INCORRECT?	CO2	
	A. An attribute of an entity can have more than one value		
15	B. An attribute of an entity can be composite		BT1
	C. In a row of a relational table, an attribute can have more than one value		
	D. In a row of a relational table, an attribute can have exactly one value or a NULL value		
	In E-R diagram generalization is represented by		
	A. Ellipse		
16	B. Dashed ellipse	CO2	BT1
	C. Rectangle		
	D. Triangle		
	What is a relationship called when it is maintained between two entities?		
17	A. Unary	CO2	BT1
17	B. Binary	CO2	DII
	C. Ternary		
	D. Quaternary	G0.	
	A primary key is combined with a foreign key creates	CO2	
	A. Parent-Child relationship between the tables that connect them		
18	B. Many to many relationship between the tables that connect them		BT1
	C. Network model between the tables that connect them		
	D. An attribute of an entity can be composite		

19	There are similarities between the instructor entity set and the secretary entity set in the sense that they have several attributes that are conceptually the same across the two entity sets: namely, the identifier, name, and salary attributes. This process is called A. Commonality B. Specialization C. Generalization D. Similarity	CO2	BT1
20	Consider the employee work-team example, and assume that certain employees participate in more than one work team. A given employee may therefore appear in more than one of the team entity sets that are lower level entity sets of employee. Thus, the generalization is A. Overlapping B. Disjointness C. Uniqueness D. Relational	CO2	BT1
21	The completeness constraint may be one of the following: Total generalization or specialization, Partial generalization or specialization. Which is the default? A. Total B. Partial C. Should be specified D. cannot be determined	CO2	BT1
22	The operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple. A. Select B. Join C. Union D. Intersection	CO2	BT1



	Theoperation performs a set union of two "similarly structured" tables	CO2	
	A. Union		
23	B. Join		BT1
	C. Product		
	D. Intersect		
	Which of the following is another name for a weak entity?	CO2	
	A. Child		
	B. Owner		
24	C. Dominant		BT1
	D. Parent		
	The subset of a super key is a candidate key under what condition?	CO2	
	A. No proper subset is a super key		
25	B. All subsets are super keys		BT1
	C. Subset is a super key		
	D. Each subset is a super key		
	In a relational model, relations are termed as		
	A. Tuples.		
26	B. Attributes	CO2	BT1
	C. Tables. D. Rows.		
	In an E-R diagram an entity set is represent by a		
	A. Rectangle.		
25	B. Ellipse.	G02	DT1
27	C. Diamond box.	CO2	BT1
	D. Circle.		

	The relational model feature is that there		
28	 A. Is no need for primary key data. B. Is much more data independence than some other database models. C. Are explicit relationships among records. D. Are tables with many dimensions. 	CO2	BT1
29	What is a relationship called when it is maintained between two entities? A. Unary B. Binary C. Ternary D. Quaternary	CO2	BT1
30	A. 2 B. 4 C. 5 D. 3	CO2	BT1
31	Let us consider first name, middle initial, and last name as a subparts of name attribute, then Name is a attribute A. Simple B. Composite C. Single D. Derived	CO2	BT1
32	An entity set which does not have any key attributes is called as a A. Strong entity set B. weak entity set C. partially Strong entity set D. partially weak entity set	CO2	BT1

	The relationship may also be referred to as a		
33	superclass-subclass relationship. A. Generalization B. Partialization C. Specialization D. Aggregation	CO2	BT1
34	Consider a relation student course details with attributes rno, sname, semester, subjects and rno. be the primary key subjects in this relation can be attribute A. Single B. Simple C. Composite D. Multivalued	CO2	BT1
35	Which of the following is not valid in case of ER diagram creation. A. Identify all the entities in the system. B. Identify relationships between entities C. Add attributes for entities D. Remove attributes for entities	CO2	BT1
36	relationship involves the same entity type more than once A. Recursive B. Many to many C. One to many D. Many to one	CO2	BT3
37	key identifies the tuples uniquely in relation. A. Primary key B. Super key C. Candidate key D. None of these	CO2	BT3

	Deletions obtained from an E.D 1-1		
	Relations obtained from an E-R model will always be in normal form		
	A. Fourth		
	B. Third	G 0.4	D.T.O
38	C. BCNF	CO2	BT2
	D. First		
	E-R modeling technique is a:		
	A. Top-down approach		
39	B. Bottom-up approach	CO2	BT2
	C. Left-right approach		
	D. Right- Left approach		
	is a bottom-up approach in which two lower level		
	entities combine to form a higher level entity.		
	A Constalination		
40	A. Specialization	CO2	BT2
40	B. Aggregation C. Initialisation	CO2	D12
	D. Generalization		
	D. Generalization		
	key is a candidate key not used for primary key		
	A. Alternate		
41	B. Foreign	CO2	BT2
'-	C. Super	002	B12
	D. Unique		
	-		
	Which of the following commands is used to get all the columns in a table?		
	a taute:		
42	A. #	CO2	ВТ3
	B. *		
	C. %		
	D. @		
	The set of permitted values for each attribute is called its:		
	A. Attribute set		
43	B. Attribute range	CO2	ВТ3
43	C. Domain		D13
	D. Group		

44	key provides the basic tuple-level addressing mechanism in a relational System A. Unique B. Alternative C. Candidate D. Primary	CO2	BT2
45	Theof Primary keys of the related entity sets becomes a Super Key of the relation. A. Union B. Intersection C. Minus D. Aggregation	CO2	BT2
46	Which of the following is not a set operation? A. Union B. Intersection C. Minus D. Aggregation	CO2	BT3
47	Which of the following is not an aggregation operation? A. Max B. Min C. Minus D. Sum	CO2	BT3

48	In E-R diagram generalization is represented by A. Ellipse B. Dashed ellipse C. Rectangle D. Triangle	CO2	BT2
49	In an E-R, Y is the dominant entity and X is a subordinate entity. Then which of the following is incorrect? A. operationally, If Y is deleted, so is X B. X existence is dependent on Y C. operationally, if X is deleted, so is Y D. operationally, if X is deleted, Y remains the same	CO2	BT2
50	denote derived attributes. A. Double ellipse B. Dashed ellipse C. Squared ellipse D. Ellipse with attribute name underlined	CO2	ВТ3
	PART B (4 Marks)		

What is the difference between a database schema and a database state?

The following points explain the main differences between database and schema:

- The fundamental difference between them is that the database is an
 organized collection of interrelated data or information about the
 considered object. In contrast, the schema is a logical
 representation or description of an entire database.
- Once we declare a database schema, we must not change it often as
 it would disturb the organization of data stored in the database. In
 contrast, we can update the database regularly.
- The database is a collection of schema, records, and constraints for the tables. On the other hand, a schema contains the structure of tables, attributes, their types, constraints, and how they relate to other tables.
- The DDL statement is used to generate and modify the schema. On the other hand, DML statements are used to create and modify the data inside the database.

• Each database uses the memory to store the data, whereas the schema can use a logical structure to store data.

Comparison Database Schema Basis Definition The database is an application that stores the The schema is a logical representation of a organized collection of interrelated data. database. Statement A DML is used to generate and modify the A DDL statement defined the schema for a records in the database. database. Modification We should not change a schema often once it is A database is updating the data regularly so that it can change frequently. declared. Include A database is a collection of schema, records, A schema always included the name of the tables, and constraints for the tables. columns name, their types, and constraints. Memory It uses memory to store data. It does not use memory to store data.

CO2 BT1

	What is an entity type? What is an entity set? Explain the differences among an entity, an entity type, and an entity set.	CO2	
	The entity type refers to the collection of entity that share a common definition.		
	Entity set is the set of entities of the same type that share the same attributes.		
2	E.g. Set of all people who are customer at a particular bank can be defined as the entity customer, while, Entity set of entities of the same entity type.		BT1
	Entity: It is something which has real existence.		
	Entity Type: It is collection of entity having common attribute. Also each entity type in a database is described by a name and a list of attribute. So we may say a table is an entity type		
	Entity SET: It is a set of entities of same entity type. So a set of one or more entities of an Entity type is an Entity Set.		

	When is the concept of a weak entity used in data modeling? Define the terms owner entity type, weak entity type, identifying relationship type, and partial key.		
	Concept of weak entity types is used in data modeling when we want to specify a new entity type similar to the one we already have, but we want this new entity type to have specific attributes and to be able to participate in specific relationships.		
	If the newly made entity type doesn't have key attributes, it is called weak entity type and it needs to be related to a strong entity type (directly or indirectly) that has: key attributes of its own.		
3	Owner (or identifying) entity type is a title for entity type that identifies weak entity types related to it. Weak entity types include one of their attributes when combining with owner entity type.		BT1
	Weak entity type is an entity type that does not have key attributes of its own.		
	Identifying relationship type is a title for relationship type that relates one weaker entity type to one owner entity type. In this relationship type, weak entity has a total participation constraint, meaning it cannot exist without its owner entity type that identifies it.		
	Partial key (or discriminator) is an attribute or set of attributes of a weak entity type that distinguishes weak entities related to the same owner entity type.		
	Can an identifying relationship of a weak entity type be of a degree greater than two? Give examples to illustrate your answer.	CO2	
4	An identifying relationship of a weak entity type can be of a degree greater than two. An example of this would be the ternary relationship of Supply. Supply is a weak entity type that has three identifying relationships.		BT2
	Draw an ER schema diagram for the COMPANY database.	CO2	
5	END USERS		BT1
	EXTERNAL VIEW 1 EXTERNAL VIEW N		

Describe the two alternatives for specifying structural constraints CO₂ on relationship types. What are the advantages and disadvantages of each? The two alternatives for specifying structural constraints on relationship types are: Cardinality ratio and Participation constraint Cardinality ratio Cardinality ratio is a simple way of specifying designs, it is specifies the maximum number of relationship a body/entity can be engaged in. Advantage of Cardinality ratio It is used to simply **complex designs** Disadvantage of cardinality ratio No specific number can be said to be maximum **Participation constraint** BT2 Participation constraint specifies the dependency of an entity on another entity based on the relationships existing between the entities Advantage of participation constraint It specifies the **minimum** number of relationship an entity can engage It shows the dependency of an entity on another <u>Disadvantage</u> It is a more **expensive** alternative Hence we can conclude that The **two alternatives** for specifying structural **constraints** on relationship types are: Cardinality ratio and Participation constraint

7	Discuss the two main types of constraints on specializations and generalizations. Specialization: constraints are generally used to provide limitations on data which can be used in table for database. Not null, unique are two constraints used in specialization. Generalization: it is a bottom up approach and in this constraints are used to create limitations in data. Check and default are two constraints used to limit data in generalization.	CO2	BT2
8	What is the difference between specialization and generalization? Why do we not display this difference in schema diagrams? Generalization is process of extracting common characteristics from two or more classes and combining them into a generalized superclass. A Specialization is the reverse process of Generalization means creating new sub classes from an existing class.		BT1
9	Design a database to keep track of information for an art museum. Assume that the following requirements were collected: The museum has a collection of ART_OBJECTS. Each ART_OBJECT has a unique Id no, an Artist (if known), a Year (when it was created, if known), a Title, and a Description. The art objects are categorized in several ways, as discussed below. ART_OBJECTS are categorized based on their type. There are three main types: PAINTING, SCULPTURE, and STATUE, plus another type called OTHER to accommodate objects that do not fall into one of the three main types.		BT1

Discuss about Entity Types, Entity Sets, Keys, and Value Sets with examples. The entity type is a collection of the entity having similar attributes. In the above Student table example, we have each row as an entity and they are having common attributes i.e. each row has its own value for attributes Roll no, Age, Student name and Mobile no. So, we can define the above STUDENT table as an entity type because it is a collection of entities having the same attributes. So, an entity type in an ER diagram is defined by a name (here, STUDENT) and a set of attributes (here, roll no, Student name, Age, Mobile no). Types of Entity type Strong Entity Type Weak Entity Type Strong Entity Type: Strong entity are those entity types which has a key attribute. The primary key helps in identifying each entity uniquely. It is represented by a rectangle. Weak Entity Type: Weak entity type doesn't have a key attribute. Weak entity type can't be identified on its own. It depends upon some other strong entity for its distinct identity. 10 CO₂ BT2 Entity Set is a collection of entities of the same entity type. In the above example of STUDENT entity type, a collection of entities from the Student entity type would form an entity set. We can say that entity type is a superset of the entity set as all the entities are included in the entity type. A key could either be a combination of more than one attribute (or columns) or just a single attribute. The main motive of this is to give each record a unique identity. There are broadly seven types of keys in DBMS: 1. Primary Key 2. Candidate Key 3. Super Key 4. Foreign Key 5. Composite Key 6. Alternate Key 7. Unique Key

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	 A weak entity is an entity set that does not have sufficient attributes for Unique Identification of its records. Example 1 – A loan entity cannot be created for a customer if the customer doesn't exist Example 2 – A dependents list entity cannot be created if the employee doesn't exist Simply a weak entity is nothing but an entity that does not have a primary key attribute 	
12	 in identifying a group of entities from the entity set A discriminator is represented by underlining with a dashed line Representation A double rectangle is used for representing a weak entity set The double diamond symbol is used for representing 	ВТ2
	the relationship between a strong entity and a weak entity which is known as identifying relationship	

		one to one one to many (mandatory) many one or more (mandatory) one and only one (mandatory) zero or one (optional) projects projects	CO2	BT2
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14	Explain about the Constraints on Ternary (or Higher-Degree) Relationships. There are two notations for specifying structural constraints on n-ary relationships, and they specify different constraints. They should thus both be used if it is important to fully specify the structural constraints on a ternary or higher-degree relationship. The first notation is based on the cardinality ratio notation of binary relationships. The second notation is based on the (min, max) notation. A (min, max) on a participation here specifies that each entity is related to at least min and at most max relationship instances in the relation-ship set. These constraints have no bearing on determining the key of an n-ary relationship, where n > 2, but specify a different type of constraint that places restrictions on how many relationship instances each entity can participate in.	CO2	BT2
15	Explain the difference between an attribute and a value set. The difference between an attribute and a value set is: An attribute holds values, while a value set are those things which are contained in a class. An attribute is the name that is given to the property of a class. On the other hand, a value set are those things that are used to represent an object in a given class. For example, an attribute can have the name "Apples" and can hold the value of "abc" while the value set are those things that can be attributed to a class. An attribute is a characteristic. For example, Attributes in the invoice can be price, number, date etc. A value set specifies the set of values that may be assigned to that attribute for each individual entry.		BT2
	PART C (12 Marks)		
1	Discuss the role of a high-level data model in the database design process.	CO2	BT2
2	Define the following terms: entity, attribute, attribute value, relationship instance, composite attribute, multivalued attribute, derived attribute, complex attribute, key attribute, and value set (domain).		BT2

3	When is the concept of a weak entity used in data modeling? Define the terms owner entity type, weak entity type, identifying relationship type, and partial key.	CO2	BT2
4	A database is being constructed to keep track of the teams and games of a sports league. A team has a number of players, not all of whom participate in each game. It is desired to keep track of the players participating in each game for each team, the positions they played in that game, and the result of the game. Design an ER schema diagram for this application, stating any assumptions you make. Choose your favorite sport (e.g., soccer, baseball, football).		BT2
5	Discuss the main categories of data models. What are the basic differences between the relational model, the object model, and the XML model?	CO2	BT2
6	Discuss the naming conventions used for ER schema diagrams.	CO2	BT2
7	Explain in detail about the Conversion of ER to Relational Table with relevant examples.	CO2	BT2
8	Discuss in detail about Key Constraints and Constraints on NULL Values with examples.	CO2	BT2