MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

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Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

MUST KNOW CONCEPTS	MKC
MCA	**2021-22**

Course Code & Course Name :21CAB03 & Relational Database Management Systems

Year/Sem/Sec : I / I / -

S.No.	Term	Notation (Symbol)	Concept / Definition / Meaning /Units / Equation / Expression	Units
Unit-I : Introduction				
1.	DBMS	--	Database Management System (DBMS) is a software for storing and retrieving users data.	I
2.	RDBMS	--	A relational database refers to a database that stores data in a structured format, using rows and columns.	I
3.	Schema	--	The terms schema is used to mean an overall chart of all the data item types and record types stored in a database.	I
4.	Sub-Schema	--	The terms sub-schema refers to the same view but for the data item types and record types which a particular user uses in a particular application.	I
5.	Instance	--	It is a actual content of the database at a particular point of time each variable has a particular value at a given instant.	I
6.	Data Models	--	Data Model is the modeling of the data description, data semantics, and consistency constraints of the data.	I
7.	Entity	--	Entity is an object that exist and is distinguishable from other object.	I

8.	Entity Set	--	Entity set is a collection or all entities of a particular entity type at any point of time is called entity set.	I
9.	Strong Entity Set	--	A Strong entity set is one that has a complete identifies values may be used identifying instance uniquely.	I
10.	Weak Entity Set	--	Weak entity type are identified by being related to specify entities from another entity type.	I
11.	Attributes	--	A particular entity will have a value for each of its attributes	I
12.	Keys	--	A keys is single attributes are combination of two or more attributes	I
13.	Structural Constraints	--	Structural constraints are information about two or more entities are related to one another.	I
14.	Cardinality Constraints	--	The maximum number of relationship instant that the entity can participate data on either side of the relationship.	I
15.	Participation Constraints	--	A participant constrains specifies the extance of an entity defence on related to another entity relationship thpe.	I
16.	Super Types	--	A super type is a generic entity type that has a relationship with one or more subtype.	I
17.	Sub Types	--	A sub type is a sub grouping of the entities is an entity type that is meaningful to the organisation.	I
18.	Relational Model	--	This model represent data and relationship among data by a collection of tables known as relationship.	I
19.	Hierarchical Model	--	A DBMS to the hierarchical data model user tree structure to relationship among records.	I
20.	Network Model	--	This model represent data by collection of records and relationship	I
21.	Entity-Relational Model	--	ER entity relationship diagram was consumed by “Peter Chen” in 1976 as a data model that exist at that time.	I
22.	Object-Oriented Model	--	A Object-Oriented Model is a logic organisation real world object.	I

23.	Database Manger	--	The interface between the low level data stored in the database and the application program.	I
24.	File Manager	--	File manager manages the allocation of space on disk storage.	I
25.	Degree of Relationship	--	The degree of a relationship is the number of entities associated in the relationship.	I
Unit-II : Relational Model and Query Evaluation				
26.	Relational Model	--	The relational data model was 1st introduced in 1970 by E.F.CODD.	II
27.	Relations	--	A relation is two-dimensional table of data..	II
28.	SQL	--	SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database.	II
29.	Relational Calculus	--	It is non-procedural or declarative.	II
30.	Tuple Relational Calculus	--	It is a variable range over tuple were as in domain relational calculus, variable range over domain values of attributes.	II
31.	Domain Relational Calculus	--	The domain variable were use from an attributes from the attributes domain then values for an entire tuple.	II
32.	DDL	--	Data Definition Language is used to create, alter and delete database object.	II
33.	DML	--	Data Manipulation Language commands user insert data into the database.	II
34.	DQL	--	Data Query Language is the one of the most commonly used SQL statement	II
35.	DAS	--	To perform adults to analysis on operation within the database.	II
36.	DCL	--	The database administrator power to give task the privilege to a specify user.	II
37.	TCS	--	All the changes made by the DML statement.	II
38.	Aggregate Function	--	SQL provides a number of aggregate functions which are used on a number	II

			of rows are called group functions.	
39.	SQL Join	--	SQL join is used for combining column from two or more tables by using values common to both table.	II
40.	Views	--	A views is a virtual data.	II
41.	Database Design	--	Database design is the process of constructing a stable database structure from user requirements analysis.	II
42.	Functional Dependencies	--	It is a constraint between two sets of attributes in a relation from a database.	II
43.	Canonical Cover	--	An attributes of a functional dependency is said to be extraneous if we can remove it without changing the closure of the set of functional dependencies.	II
44.	Normalization	--	It is the process of efficiently organising data n a database.	II
45.	Constraints	--	SQL constraints are used to specify rules for the data in a table	II
46.	Merge Data	--	View can be used to merge data from multiple tables in multiple databases.	II
47.	Predicates	--	It specify condition sthat can be evaluated to SQL three-valued logic.	II
48.	Existential Quantifiers	--	The phrase "there exists an xx such that" is called an existential quantifier and is denoted by ∃ x∃ x	II
49.	Unary Operation	--	The unary operations are the operations which operate on one operands.	II
50.	Binary Operation	--	There are operations which operate on two operands known as binary operations.	II
Unit-III : Transaction Processing				
51.	Transaction	--	A transaction is a logical, atomic unit of work that contains one or more SQL statements.	III
52.	Abort	--	Abort also known as "rollback".	III
53.	Atomicity	--	Atomicity means that multiple operations can be grouped into a single logical entity.	III

54.	Consistency	--	The database is consistent before an execution of the transaction the database remains consistent after the execution of the transaction.	III
55.	Isolation	--	One transaction must be isolated from resource or data modifications made by other transactions.	III
56.	Durability	--	That once a transaction completes successfully, all the updates that it carried out on the database.	III
57.	Serial Schedule	--	That one transaction is executed first.	III
58.	Concurrent Schedule	--	The database is being accessed from more than one connection (user) at a time.	III
59.	Serializability	--	Serializability is a schedule that produces the same results as a serial schedules.	III
60.	Concurrency Control	--	It is a procedure of managing simultaneous operations without conflicting with each other.	III
61.	Lock	--	Lock is the most common used to implement the requirement is to allow a transaction to access a data .	III
62.	Binary Lock	--	A binary lock can have two states or values locked and unlocked.	III
63.	Growing Phase	--	In this phase the number of locks increases from zero to the maximum for the transaction.	III
64.	Contracting Phase	--	In this phase the number of locks held decreases from the maximum to zero.	III
65.	Shadow Paging	--	Shadow paging is an alternative to log-based recovery techniques.	III
66.	Confidentiality	--	A secure system ensure the confidentiality of data.	III
67.	Database Security	--	It is concerned with the enforce a security policy disclosure, modification or destruction of information.	III
68.	Garbage Collection	--	A garbage collection is a type of memory management.	III
69.	Integrity	--	Data integrity is the maintenance of data accuracy and consistency.	III
70.	Availability	--	Data availability is about the	III

			timeliness and reliability of access to and use of data.	
71.	Access Control	--	Access Control (AC) is the selective restriction of access to a place or other resource management describes the process.	III
72.	Pages	--	The database is assumed to be partitioned into fixed length blocks called pages.	III
73.	Exclusive Lock	--	The exclusive lock is also called an update or a write lock.	III
74.	Shared Lock	--	The shared lock is also called a read lock.	III
75.	Deadlock	--	A database, a deadlock is a situation in which two or more transactions are waiting for one another to give up locks.	III
Unit-IV : Files and Indexing				
76.	File Organization	--	File organisation refers to the logical structuring of the records as determined by the way in which they are accessed.	IV
77.	Fields	--	Character can be combined to form a field.	IV
78.	Records	--	All the related files for an particular event are called a record.	IV
79.	Fixed-Length Records	--	In a file with fixed-length records, all records on the page are of the same slot length.	IV
80.	Variable-Length Records	--	All records on the page are not of the same length. .	IV
81.	Byte-String	--	Byte-string representation in one of the simplest techniques of implementing variable-length operation.	IV
82.	List	--	A list or group of individuals of the highest level	IV
83.	Heap Access File	--	A heap or pile file records are collected in the order they arrive.Pointer link the block used in a heap.	IV

84.	Sequential Access File	--	The most basic way to organise the collection of records in a file is to use sequential organisation	IV
85.	Index Sequential Access File	--	It is a hybrid organization which uses elements of indexed and sequential file organizations.	IV
86.	Direct Access File	--	Files records can be read in any order are called direct access or random access files.	IV
87.	Indexing	--	Indexing is a way of providing a fast access path to the values of a column	IV
88.	Single-Level Index	--	Indexes can be created on the field based on which the file based.	IV
89.	Primary Index	--	The key of a table is that part of a record which uniquely identifies that records.	IV
90.	Dense Index	--	The dense index contains an index record for every search key value in the data file.	IV
91.	Sparse Index	--	A sparse index in databases is a file with pairs of keys and pointers for every block in the data file.	IV
92.	Clustering Index	--	A cluster is a grouping of data.	IV
93.	Multi-Level Index	--	It is common to have several thousands of records in the database of medium-or large-scale organisation.	IV
94.	B-tree Indexing	--	A data structure which is a height balanced version of m-way search tree is known as a B-tree of order m.	IV
95.	B^+ - tree Indexing	--	B+ tree all keys are maintained in leaves, and keys are replicated in non-leaf nodes.	IV
96.	Grid Files	--	Grid files provide an efficient method of storing these indexes on disk to perform complex data lookups.	IV
97.	Hashing	--	The usual method of direct mapping is by performing some arithmetic manipulation of the key value.	IV
98.	Hash Tables	--	A hash table , or a hash map, is a data structure that associates keys with values.	IV
99.	Hashing Functions	--	A hash function is any well-defined	IV

			procedure or mathematical function	
100.	Collision	--	A Hash Collision attack is an attempt to find two input strings of a hash function that produce the same hash result.	IV
Unit-V : Special-Based Databases				
101.	Object-Based Databases	--	The small overall approach of object-oriented programming.It is an method is a procedure or action.	V
102.	Context	--	An object oriented database works in the context of a regular programming language.	V
103.	Data Abstraction	--	This process of hiding irrelevant details from user is called data abstraction.	V
104.	Data Encapsulation	--	Data encapsulation, also known as data hiding, is the mechanism whereby the implementation .	V
105.	Polymorphism	--	'Poly' means many and 'Morph' means images/shapes.	V
106.	Message Passing	--	The concept of message makes it easier to talk about building systems that directly model or simulate their real-world counterparts.	V
107.	Object-Oriented Data model	--	It is a logic organisation of the real world objects, constraints on them and the relationships among objects.	V
108.	Smalltalk	--	O-O language was smalltalk developed at the learning reserach group at Xerox's Palo Alto research center in the early 1970s.	V
109.	XML	--	XML stands for Extensible Markup Language.	V
110.	Logical Structure	--	The logical structure is like a template that entities the elements to be included in a document and in the order in which they have to be included.	V
111.	Physical Structure	--	The physical structure contains the actual data used in a document.	V
112.	Element Content	--	The content is whatever lies between the start tag and the end tag.	V

113.	DTD	--	Document Type Definition (DTD) grammar expected of documents that use its vocabulary.	V
114.	Temporal Databases	--	It stores data relating to time instances.	V
115.	Mobile Databases	--	Mobile databases are separate from the main database and can easily be transported to various places.	V
116.	Spatial Database	--	Spatial data is associated with geographic locations such as cities,towns etc.	V
117.	Spatial Indexing	--	Index files are auxiliary files used to speed up the searching of a data file.	V
118.	R-Tree	--	One of the best known techniques is the use of R-trees and their variations.	V
119.	Quadtree	--	The spatial storage structure include quardtrees and thier variations. Quadtrees generally divide each space or sub-space into equally sized areas.	V
120.	XML Schema	--	An XML schema is a description of a type of XML document, typically expressed in terms of constraints on the structure and content of documents.	V
121.	Comments	--	A comments written in XML in similar to HTML which begins with <!--and closed by - ->.	V
122.	Empty Elements	--	Empty elements have only one tag, not a start and end tag.	V
123.	Root Element	--	The document instance consists of the root elements. Every other element must be contained within a root element.	V
124.	Persistent Programming Languages	--	Programming languages that natively and seamlessly allow objects to continue existing after the program.	V
125.	Inheritance	--	Inheritance is the process by which objects of one class acquire the properties of objects of another class.	V

Placement Questions				
126.	Relational model	--	EdgEdgar F. Codd proposed the relational model in 1970.	
127.	Database languages	--	Data definition language Data manipulation language Query language	
128.	SQL	--	Structured Query Language (SQL) being ANSI standard language updates database and commands for accessing	
129.	Normalization	--	Organized data void of inconsistent dependency and redundancy within a database is called normalization.	
130.	sub-query	--	A query contained by a query is called Sub-query.	
131.	group-clause	--	Group-clause uses aggregate values to be derived by collecting similar data.	
132.	Non-clustered and clustered index	--	Both having B-tree structure, non-clustered index has data pointers enabling one table many non-clustered indexes.	
133.	Scalar functions	--	Scalar function is depended on the argument given and returns sole value.	
134.	Index hunting	--	Indexes help in improving the speed as well as the query performance of database.	
135.	B-trees	--	A data structure in the form of tree which stores sorted data and searches, insertions, sequential access and deletions are allowed in logarithmic time.	
136.	Database partitioning	--	Division of logical database into independent complete units for improving its management, availability and performance.	
137.	DDL Interpreter	--	DDL statements are interpreted and recorded in tables called metadata. he or she performs.	
138.	Object-oriented model.	--	Compilations of objects make up this model in which values are stored within instance variables which is inside the object.	

139.	Entity	--	It can be defined as being a 'thing' with an independent existence in the real world.	
140.	Entity type	--	A set of entries having similar attributes are entity types.	
141.	Entity Set.	--	Compilation of all entries of any particular type of entry in the database is called Entity Set	
142.	Entity type extension	--	Compilation of similar entity types into one particular type which is grouped together as an entity set.	
143.	E-R model	--	E-R model is a short name for the Entity-Relationship model. This model is based on the real world.	
144.	Extension of entity type	--	An extension of an entity type is specified as a collection of entities of a particular entity type that are grouped into an entity set.	
145.	Weak Entity set	--	An entity set that doesn't have sufficient attributes to form a primary key is referred to as a weak entity set.	
146.	Data Independence	--	Data independence specifies that "the application is independent of the storage structure and access strategy of data".	
147.	Join	--	The Join operation is one of the most useful activities in relational algebra.	
148.	BCNF	--	BCMF stands for Boyce-Codd Normal Form. It is an advanced version of 3NF.	
149.	ACID properties	--	ACID properties are some basic rules, which has to be satisfied by every transaction to preserve the integrity.	
150.	Intension	--	Intension is also known as Data Schema and defined as the description of the database.	

Faculty Prepared **Signature**

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