USN	:	1	D	A	1	9	C	S	0	7	7

Sub Code	18CS53

Dr. Ambedkar Institute of Technology, Bangalore – 56

(An Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)

5th Semester B.E. Degree (Autonomous) Continuous Internal Evaluation - I

Odd Semester 2021-22

Date: 25-11-2021	Sub. Title: Data Base Management System	Timings: 1.30 PM – 2.30 PM
Day: Thursday	Sub. Code: 18CS53	Time duration: 1 hour
Programme: B.E (CSE)		Max marks: 25
Semester: V Sem	CIE – I	Staff in-charge: Dr. Asha Mrs. Veena Potdar

Q. No.		Note : Answer ALL the questions	Marks	Course Outcomes	BTL* Cognitive Level
1.	a)	Explain the three-schema architecture with the help of a neat diagram. Also explain the languages used at each level.	5 M	CO1	L3
	b)	Explain the various attributes data types in SQL with an example for each.	5 M	CO3	L3
2.	a)	Illustrate the differences of using a DBMS over the traditional file processing.	5 M	CO1	L4
	b)	Discuss the usage of the following with syntax & examples. i) Alter Table command ii) Group-By-Having Clause	5 M	CO3	L2
		OR			
	c)	Consider the following schema: Sailors (sid: integer, sname: string, rating: integer, age: real) Boats (bid: integer, bname: string, color: string) Reserves (sid: integer, bid: integer, day: date) Write SQL queries for the following 1. Find the colors of boats reserved by Andy. 2. Find the names of sailors who have reserved a red boat & a green boat.	5 M	CO3	L3

4BTL* - Bloom's Taxonomy Level

Name & Signature of Faculty

Dr. Asha -

Mrs. Veena Potdar -

Approved By HOD

Quiz/Objective Type Questions								Sub Code: 18CS53
Note: Answer ALL the questions								
1.	The database environment has all the following components except							
	A	Database administrator	B	Database	C	Users	D	Separate files
2.	DBMS is a collection of ..... that enables user to create and maintain a database.							
	A	Keys	B	Translators	C	Language Activity	D	Program
3.	What does the data dictionary identify?							
	A	Field formats	B	Field types	C	Field names	D	All of the above
4.	DBMS helps to achieve							
	A	Data independence	B	Centralized control of data	C	Neither (A) or (B)	D	Both (A) and (B)
5.	Which is the subset of SQL commands used to manipulate Oracle database structures, including tables?							
	A	DDL	B	DML	C	TCL	D	DQL
6.	A field that uniquely identifies which person, thing, or event the record describes is a ____							
	A	Key	B	Field	C	Data	D	File
7.	In SQL, which of the following is not a DDL command							
	A	RENAME	B	REVOKE	C	UPDATE	D	GRANT
8.	Which operator performs pattern matching							
	A	Between operator	B	Exists operator	C	Like operator	D	Not-in operator
9.	____ represents raw facts, whereas ___ is data made meaningful.							
	A	Records, bytes	B	Information, reporting	C	Information, bits	D	Data, information
10.	Which of the following places the common data elements in order from smallest to largest?							
	A	Character, file record, field, database	B	Character, record, field, file, database	C	Bit, byte, character, record, field, file, database	D	Character, field, record, file, database

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Sub Code	18CS53

Dr. Ambedkar Institute of Technology, Bangalore – 56

(An Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)

5th Semester B.E. Degree (Autonomous) Continuous Internal Evaluation - II

Odd Semester 2021-22

Date : 28-12-2021	Sub. Title : Data Base Management System	Timings : 1.30 PM – 2.30 PM
Day : Tuesday	Sub. Code : 18CS53	Time duration : 1hour
Programme : B.E (CSE)		Max marks : 25
Semester : V	CIE – II	Staff in-charge: Dr. Asha Mrs. Veena Potdar

Q. No.		Note : Answer ALL the questions	Marks	Course Outcomes	BTL* Cognitive Level
1.	a)	Design the ER diagram for an Art-Gallery database. Galleries keep information about artists, their names (which are unique), birthplaces, age, and style of art. For each piece of artwork, the artist, the year it was made, its unique title, its type of art (e.g., painting, lithograph, sculpture, photograph), and its price must be stored. Pieces of artwork are also classified into groups of various kinds, for example, portraits, still lifes, works by Picasso, or works of the 19th century; a given piece may belong to more than one group. Each group is identified by a name (like those just given) that describes the group. Finally, galleries keep information about customers. For each customer, galleries keep that person's unique name, address, total amount of dollars spent in the gallery, and the artists and groups of art that the customer tends to like.	5 M	CO1	L4
	b)	Briefly discuss the different types of UPDATE operations on relational database. Show with an example constraint violated in each of the update operation.	5 M	CO1	L2
2.	a)	Illustrate the typical states that a transaction goes through during execution with the help of a state transition diagram.	5 M	CO4	L3
	b)	With the help of examples, explain Theta join & Natural join operations in relational algebra.	5 M	CO1	L2
		OR			
	c)	Consider the following schema Sailors(Sid,Sname,Rating,age) Boats(Bid,Bname,color) Reserves(Sid,Bid,day) Write queries in relational algebra 1. Find the names of sailors who have reserved the boat 'Clipper'. 2. Display names of sailor who have reserved green and red boat.	5 M	CO1	L2

BTL* - Bloom's Taxonomy Level

Name & Signature of Faculty

Dr. Asha –

Mrs. Veena Potdar –

Approved By HOD

Quiz / Objective Type Questions								Sub Code: 18CS53
Note : Answer ALL the questions								
1	The values appearing in given attributes of any tuple in the referencing relation must likewise occur in specified attributes of at least one tuple in the referenced relation, according to _____ integrity constraint.							
	A	Referential	B	Primary	C	Referencing	D	Specific
2	_____ is a set of one or more attributes taken collectively to uniquely identify a record.							
	A	Primary Key	B	Foreign key	C	Super key	D	Candidate key
3	Which of the following has "all-or-none" property in a transaction?							
	A	Atomicity	B	Durability	C	Isolation	D	All of the mentioned
4	The database system must take special actions to ensure that transactions operate properly without interference from concurrently executing database statements. This property is referred to as							
	A	Atomicity	B	Durability	C	Isolation	D	All of the mentioned
5	A weak entity type always has a _____with respect to its identifying relationship							
	A	Total participation constraint	B	Partial Participation Constraint	C	Both A and B	D	Either A or B
6	_____ produces the relation that has attributes of R1 and R2							
	A	Intersection	B	Difference	C	Cartesian product	D	Product
7	Which of the following operation is used if we are interested in only certain columns of a table?							
	A	PROJECTION	B	SELECTION	C	UNION	D	JOIN
8	In unary relational operations, the SELECT operation is partition of relation usually classified as							
	A	Vertical partition	B	Insert partition.	C	Horizontal partition	D	Delete partition.
9	Which of the following operations need the participating relations to be union compatible?							
	A	UNION	B	INTERSECTION	C	DIFFERENCE	D	All of the above
10	An entity set that does not have sufficient attributes to form a primary key is termed a _____							
	A	Strong entity set	B	Variant set	C	Weak entity set	D	Variable set

USN	1	D	4	1	9	C	S	0	7	7

18CS53

FIFTH Semester B.E. Degree Semester End Examination (SEE), FEB/MAR-2022

DATABASE MANAGEMENT SYSTEM

[Time: 3 Hours] **[Maximum Marks: 100]**

Instructions to students:

(i) Answer FIVE FULL Questions as per the choice.
(ii) Any Missing Data can be assumed suitably.
(iii)Use BLACK ball point pen for text, figure, table, etc.

			Marks	CO	RBT Level
1.	a)	Explain the characteristics of database approach with its advantages over file processing system .	[10 Marks]	CO1	L2
	b)	With a neat diagram explain the three-schema architecture with languages used at each level.	[10 Marks]	CO1	L2
		OR			
2.	a)	Design and explain the ER diagram for LIC database by taking into account at least five entities with attributes and relationship.	[10 Marks]	CO1	L3
	b)	Explain with a neat sketch, the different phases of database design.	[10 Marks]	CO1	L2
3.	a)	What are different types constraints on relationship types? Explain with examples.	[10 Marks]	CO1	L2
	b)	Explain different types of JOIN operations used in Relational Algebra with examples.	[10 Marks]	CO1	L2
		OR			
4.	a)	With respect to the Relational data model, explain the concept of primary keys and Foreign keys. Illustrate your answer with examples.	[10 Marks]	CO1	L2
	b)	Consider the following schema Sailors(Sid,Sname,Rating,age) Boats(Bid,Bname,color) Reserves(Sid,Bid,day) Write queries in relational algebra i. Write the names of sailor who have reserved boat number 103. ii. Display names of sailor who have reserved green and red boat. iii. Display the name of sailor and boat reserved on Thursday. iv. Display the name of the sailor, whose age is 45 and not reserved any boats	[10 Marks]	CO1	L3
5.	a)	Explain the following with example in SQL: i) Group By Clause ii) Order By Clause	[04 Marks]	CO2	L2
	b)	Explain with example different data types used in SQL.	[04 Marks]	CO2	L1
	c)	Consider the following company database: Employee(SSN,Ename, salary, superssn,Dno) Department(Dnum,Dname,MgrSSN) Location(Dnum,location) Works(ESSN,Pno,hours)	[12 Marks]	CO2	L3

Project(Pno,Pname)
Dependents(ESSN,Depname,Sex)
Write queries in SQL

i. Retrieve names of employee whose salary is greater than all the employee in department number 3
ii. Retrieve number of dependents for employee named Ravi.
iii. Display employee name and his/her supervisor name.
iv. Retrieve Pname of employee named Ravi.

OR

6.	a)	Explain insert, update and Alter statements with syntax and example in SQL.	[10 Marks]	CO2	L2
	b)	Briefly explain Views in SQL along with the syntax. Discuss the problems that may arise when one attempts to update a view. How are views practically implemented?	[10 Marks]	CO2	L2
7.	a)	Explain informal design guidelines used as a measures to determine the quality of relation schema design.	[10 Marks]	CO3	L2
	b)	Explain Boyce-Codd normal form with example . How does it differ from 3 NF? Why is it considered a stronger form of 3 NF?	[10 Marks]	CO3	L2

OR

8.	a)	Explain 1NF, 2NF and 3NF with suitable examples for each.	[10 Marks]	CO3	L2
	b)	Let R ={SSN, Ename,Pnumber,Pname,Plocation, Hours} and D={R1,R2,R3} where R1=EMP={SSN,Ename} R2= PROJECT= {Pnumber,Pname,Plocation} R3=WORKS_ON={SSN ,Pnumber,Hours} The following functional dependency holds on relation R F={ SSN→ Ename; Pnumber→{Pname,Plocation}; {SSN,Pnumber}→Hours. Prove that the above decomposition of relation R has the lossless join property.	[10 Marks]	CO3	L3
9.	a)	Discuss the problems of deadlock and starvation and different approaches to deal with these problems.	[10 Marks]	CO4	L2
	b)	Explain two phase locking protocol with example. Prove that Strict Two Phase locking protocol guarantees Strict Schedule with example.	[10 Marks]	CO4	L2

OR

10.	a)	Explain time stamp ordering protocol for concurrency control. Explain the advantage of this protocol.	[10 Marks]	CO4	L2
	b)	Explain the problems that can occur when concurrent transactions are executed. Give examples for each.	[10 Marks]	CO4	L2

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