

KONGU ENGINEERING COLLEGE, PERUNDURAI – 638060  
DEPARTMENT OF INFORMATION TECHNOLOGY  
DATABASE MANAGEMENT SYSTEM  
TUTORIAL – 6

Roll No :

Date:

Marks : 25

1. Which of the following statements is correct about E-R data Model?

- a) E-R Model is a way of structuring data using relations.
- b) E-R Model consists of set of entities and relation among these entities.**
- c) E-R Model consists of a collection of records connected to one another.
- d) E-R Model consists of collection of data, organized into a tree-like structure.

2. Identify the valid primary key attribute for the below mentioned table.

Account			
Account_number	Name	Branch_name	Balance
114587932	ROHAN	NEW DELHI	25000
558479321	KARTIKA	CHENNAI	28000
321101125	PINAKI	KOLKATA	30000
102287655	ROHAN	BANGALORE	25000
225487001	ABHINASH	NEW DELHI	26000

- a) **Account Number**                      b) Name                      c) Balance                      d) Branch Name

3. Which of the following is incorrect regarding levels of abstraction in database ?

- a) Physical level describes how to store a record and not the relationship among the data.
- b) Logical level describes what data to store in database and the relationship among the data.
- c) Physical level describes what data to store in the database.**
- d) View level hides the details of data types.

4. Choose the correct statement/s related to database languages.

- a) The output of DDL is placed in the data dictionary which contains meta-data.**
- b) DML helps in alteration to the table.
- c) DML enables the users to manipulate the data.**
- d) DDL helps in insertion of records to the table.

5. Pick the correct type of join which returns all matched or unmatched rows from the tables.

- a) EQUI JOIN                      b) LEFT OUTER JOIN    c) **FULL OUTER JOIN**                      d) RIGHT OUTER JOIN

6. Consider two relations r1 and r2. Pick the correct operation from the following that compute the relation having the set of attributes belonging to relation r1 and not belonging to relation r2.

- a) UNION operation      b) INTERSECTION operation                      c) JOIN operation                      **d) MINUS operation**

7. Consider the student table.

student		
regd_no	name	dept
1	SAM	CSE
5	ANIEE	ECE
1	ALEX	CIVIL
10	JOHN	CSE

Find which of the following statement/s is/are correct for the records selected below from the student table.

regd_no	name	dept
1	SAM	CSE
10	JOHN	CSE

- a) Find the students who belong to 'CSE' department.
- b) Find the names of the students who belong to 'CSE' department.
- c) Find the students whose name is either 'SAM' or 'JOHN'.
- d) Find the students whose registration number is either 1 or 10.

8. Choose the correct SQL command to display the customer name and loan number of customers who have a loan from bank and whose name starts with 'A'. Primary keys are underlined in the schema.

borrower(customer name, loan number)

- a) SELECT \* FROM borrower WHERE customer\_name = 'A';
- b) **SELECT \* FROM borrower WHERE customer\_name LIKE 'A%';**
- c) SELECT \* FROM borrower WHERE customer\_name LIKE '%A';
- d) SELECT \* FROM borrower WHERE customer\_name LIKES 'A%';

9. Given the schema (primary key is underlined)

salary(person id, sal)

Describe the result obtained by the following query.

SELECT MAX(sal) AS SALARY FROM salary WHERE sal < (SELECT MAX(sal) FROM salary);

- a) Finds the salary of the person with highest salary
- b) **Finds the salary of the person with second highest salary**
- c) Finds the salary of all persons having less than the highest salary
- d) Finds the salary of all persons having the highest salary

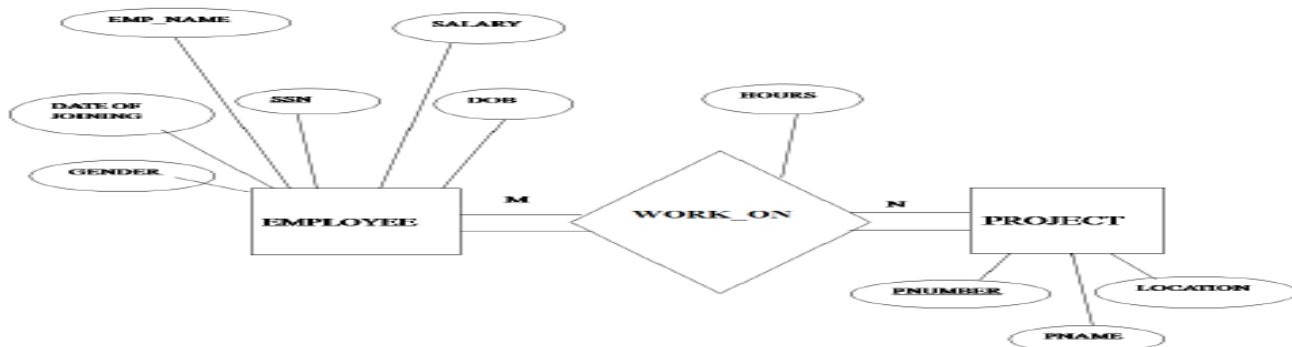
10. Identify the following the correct way/s to delete all rows at a time from salary table.

- a) DELETE \* FROM salary;
- b) **TRUNCATE TABLE salary;**
- c) **DELETE FROM salary;**
- d) TRUNCATE TABLE FROM salary;

11. Find the names of the branches whose average loan amount is more than 70000. Primary keys are underlined in the schemas. loan(loan number, branch name, amount)

- a) SELECT branch\_name FROM loan GROUP BY branch\_name AVG(amount) > 70000;
- b) **SELECT branch\_name FROM loan GROUP BY branch\_name HAVING AVG(amount) > 70000;**
- c) SELECT branch\_name FROM loan ORDER BY branch\_name HAVING AVG(amount) > 70000;
- d) SELECT branch\_name FROM loan GROUP BY branch\_name HAVING amount > 70000;

12. Map the given E-R model into relational model in the context of M:N relationship type.



- a) work on(ssn; hours)
- b) **work on(ssn; pnumber; hours)**
- c) work on(ssn; pnumber)
- d) work on(emp name; ssn; pnumber; gender; salary; dob; dateofjoining; pname; location)

13. Find the functional dependencies that stand valid on the part of the relation shown below:

p	q	r
a	1	x
a	2	x
b	3	x
b	4	x

- a)  $p \rightarrow q, p \rightarrow r$   
**b)  $q \rightarrow p, p \rightarrow r$**   
c)  $q \rightarrow p, r \rightarrow p, p \rightarrow r$   
d)  $p \rightarrow q, p \rightarrow r, r \rightarrow p$

14. Identify the prime and non prime attributes from the given Functional dependencies:

$R(mnopqrst), F(q \rightarrow rst, mn \rightarrow pqrst, o \rightarrow pq, p \rightarrow m)$

- a) m, n are prime attributes and o, r, s, t are non prime attributes.  
b) o, n are prime attributes and m, p, s, t are non prime attributes.  
c) m, r, p, t are prime attributes and n, o, s, q are non prime attributes.  
**d) m, n, o, p are prime attributes and q, r, s, t are non prime attributes.**

15. The canonical cover of  $R=(a, b, c)$  where  $F=(a \rightarrow bc, b \rightarrow c, a \rightarrow b, ab \rightarrow c)$  is:

- a)  $a \rightarrow bc$     **b)  $a \rightarrow b, b \rightarrow c$**     c)  $a \rightarrow b, ab \rightarrow c$     d)  $a \rightarrow bc, ab \rightarrow c$

16.  $R(a, b, c)$  have  $F=(ab \rightarrow c, c \rightarrow b)$ . The table is not in which normal form:

- a) 1NF    b) 2NF    c) 3NF    **d) BCNF**

17. The following relation guarantees which highest normal form?

<u>sid</u>	sname	<u>course</u>	teacher
S1	RAM	C	AR
S2	MADHU	DBMS	PPD
S1	RAM	DBMS	PB
S2	MADHU	C	SM

- a) 1NF    b) 2NF    c) BCNF    d) 3NF

18. The different storage mediums used are Cache, Main Memory, Flash Memory, Magnetic Disk, Optical Disk and Magnetic Tape. Choose the correct ordering of these mediums according to their Access speed from slower to faster.

- a) Magnetic Tape, Magnetic Disk, Cache, Main Memory.  
**b) Magnetic Tape, Magnetic Disk, Main Memory, Cache.**  
c) Magnetic Disk, Magnetic Tape, Main Memory, Cache  
d) Cache, Main Memory, Magnetic Tape, Magnetic Disk

19. The correct SQL query to create Bitmap index on attribute grade on the following table student

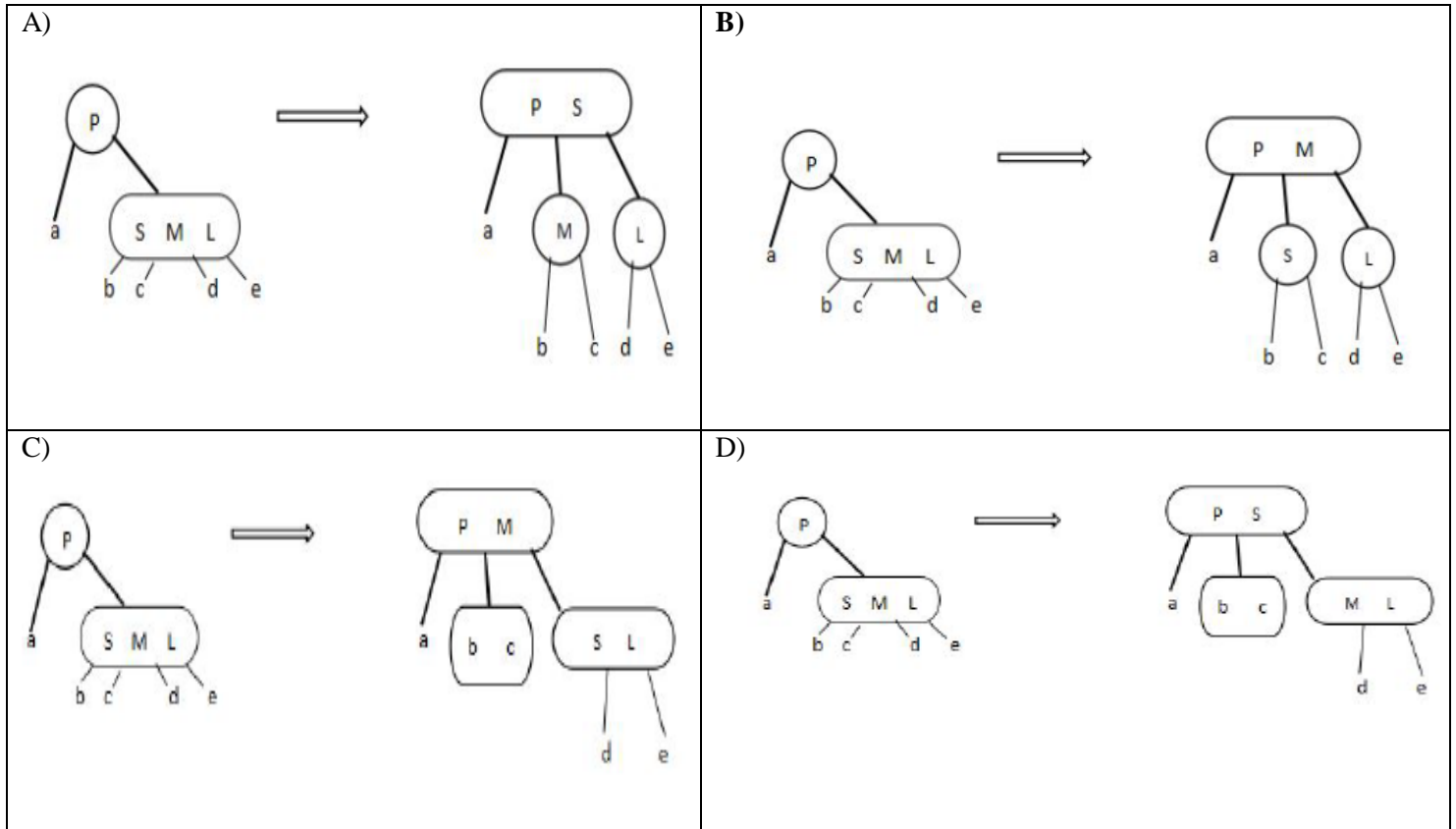
student		
id	stream	grade
2322	CSE	A
1221	IT	A
3242	CSE	B
5850	ECE	B
1972	IT	A

- a) CREATE BITMAP Grade on student(grade).  
b) CREATE BITMAP Grade on grade(student).  
**c) CREATE BITMAP INDEX Grade on student(grade).**  
d) CREATE BITMAP INDEX Grade on grade(student).

20. Which of the following RAID level is called as Block-Interleaved Distributed Parity.

- a) RAID Level-2    b) RAID Level-3    c) RAID Level-4    **d) RAID Level-5**

21. Which of the following cell splitting strategies are possible in 2-3-4 tree? (3 node tree)



22. Consider the following transaction schedules S1 and S2.

T1	T2	T1	T2
read (A)		read(A)	
A:=A-50		A:=A-50	
write (A)		write (A)	
	read (B)		read (A)
	B:=B+50		A:=A+50
	write (B)		write (A)
read (B)		read (A)	

S1                      S2

- a) **S1 is serializable, S2 is non-serializable.**  
b) S1 is non-serializable, S2 is serializable  
c) Both S1 and S2 are serializable.  
d) Both S1 and S2 are non-serializable

23. Identify the options that are incorrect for view serializability and conflict serializability.

- a) A schedule S is view serializable if it is view equivalent to a serial schedule.  
b) Every view serializable schedule that is not conflict serializable has blind writes.  
c) Every conflict serializable schedule is view serializable.  
**d) Every view serializable schedule is conflict serializable.**

24. Which of these is not a Transaction control language(TCL) command?:

- a) ROLLBACK      **b) UPDATE**      c) COMMIT      d) SAVEPOINT

25. Before transaction Ti executes write (X) operation, a log record REDO < Ti, X, V1, V2 > is written. Identify the correct option about that log record.

- a) Ti updates the value of X from old value V2 to new value V1      **b) Ti updates the value of X from old value V1 to new value V2**  
c) Ti updates the value of X to any value in the range (V1; V2)  
d) Ti sets the value of X that toggles between V1 and V2.