Register Number:

Question Paper Code: 13412P40

KARPAGAM COLLEGE OF ENGINEERING

(Autonomous)

Coimbatore – 32

END SEMESTER EXAMINATIONS – APRIL 2014

B.E (CSE/ECE/ETE)/B.TECH(IT) - Semester IV

12P403/12F403/12L406/12T406 – DATABASE MANAGEMENT SYSTEMS

Time: 3 hrs **Max. Marks: 1**

Answer ALL questions

PART- A **(10x2 = 20 mark**

1. Mention the different types of data models.
2. Write a query to list all cities of Table1 if there is match in cities in Table2 & also unmatched cities from Table1.

TABLE 1

Emp_ID	CITY
A1	NEW YORK
A2	NULL
A3	CHICAGO
A4	CHICAGO
A5	PARIS

TABLE2

Emp_ID	CITY
B1	NEW YORK
B2	NEW YORK
B3	NULL
B4	CHICAGO
B5	MOSCOW

3. Differentiate primary key and a unique key.
4. List the ACID properties of DBMS.
5. What are the steps involved in Query processing?
6. Spot the errors & correct the query:

```
SELECT Employees.LastName, COUNT (Orders.OrderID) AS NumberOfOrders FROM (Orders
INNER JOIN Employees
ON EmployeeID=Employees,EmployeeID)
GROUP BY LastName
HAVING COUNT(Orders.OrderID) > 10;
```

7. Draw the transaction state diagram.
8. Give an example of a relation scheme R and a set of dependencies such that R is in BCNF, but not in 4NF.
9. What will be the condition in which two or more transactions in a set are waiting simultaneously?
10. Define Data Mining.

PART - B **(5x16 = 80 marks)**

11. (a) (i) Explain the structure of database system with a neat diagram. (12
(ii) List the drawbacks of File Processing System. (4

(OR)

(b) (i) Construct an E-R Diagram for the following scenario and consider Department, Student, Course and Instructor as entities. (16

- A college contains many departments
- Each department can offer any number of courses
- Many instructors can work in a department.
- An instructor can work only in one department.
- For each department there is a Head.
- An instructor can be head of only one department.
- Each instructor can take any number of courses.
- A course can be taken by only one instructor.
- A student can enrol for any number of courses.
- Each course can have any number of students.

12. a) Normalize the following table into 1NF, 2NF & 3NF. (16)

Student Details		Course Details			Result details		
1001 Ram	11/09/1986	M4	Basic Maths	7	11/11/2004	89	A
1002 Shyam	12/08/1987	M4	Basic Maths	7	11/11/2004	78	B
1001 Ram	23/06/1987	M6		4	11/11/2004	87	A

1003	Sita	16/07/1985	C3	Basic Chemistry	11	11/11/2004 90
1004	Gita	24/09/1988	B3		8	11/11/2004 78
1002	Shyam	23/06/1988	P3	Basic Physics	13	11/11/2004 67
1005	Sunita	14/09/1987	P3	Basic Physics	13	11/11/2004 78
1003	Sita	23/10/1987	B4		5	11/11/2004 67
1005	Sunita	13/03/1990	H6		4	11/11/2004 56
1004	Gita	21/08/1987	M4	Basic Maths	7	11/11/2004 78

(OR)

b) Answer all the questions:

I. Which of the following clause is used to limit the number of rows retrieved from a SELECT
a) LIMIT b). WHERE c). AND d). FROM

II. Choose the database elements whose values can be compared in a WHERE clause of a SEL query.
a) Column b). Sequence c). Procedure d). Literal

III. What are the elements NOT contained in the WHERE clause predicate of the SELECT que
a) Comparison operator b). Comparison condition c). Column Name d). Table Name

IV. Which of the following values can NOT be returned after evaluation of WHERE clause co
a) UNKNOWN b). TRUE c). FALSE d). NULL

V. What is the minimum number of WHERE clauses that must be present in a SELECT query?
a) 1 b). 2 c). 0 d). 3

VI. What is the maximum number of WHERE clauses that can be included in a SELECT query
a) 1 b). 2 c). 0 d). 3

VII. Which of the following statements are correct about the WHERE clause?
a) Column Alias can be used in WHERE clause to refer a column
b) Comparison operator is an optional element in WHERE clause condition
c) Functions can be used as operands in the WHERE clause
d) There can be multiple WHERE clause in a SELECT query

VIII. Write a SELECT query to list down unique departments from EMP table?
a) SELECT deptno FROM emp; b). SELECT DISTINCT deptno FROM em
c). SELECT DISTINCT (deptno) FROM emp; d). SELECT empno, DISTINCT deptno F

IX. Which of the following operations is not permitted for date and timestamp columns?
a) Division b). Addition c). Subtraction d). Concatenation

X. From the operators, which one of them holds the highest precedence level?
a) Division (/) b). Multiplication (*) c). Brackets (()) d). Subtraction (-)

XI. Interpret the output returned by the SELECT query
SELECT ename, (sysdate - hiredate) FROM emp;
a) Number of days in the current year b). Number of days in the year when an employe
c). Number of days spent by employee with the company
d). The query raises exception "ORA-00932: inconsistent datatypes: expected NUMBER g

XII. Which of the statements correctly describe the DUAL table in Oracle?
a) DUAL table is a temporary table in Oracle database
b) DUAL table contains only one character type column known as DUMMY
c) DUAL table owned by SYS cannot be dropped
d) A table with the name DUAL can be created by a user in its own schema

XIII. Determine the type of output returned by the query
SELECT sysdate – hiredate FROM emp WHERE empno=7369;
a) DATE data type b). NUMBER data type
c). VARCHAR2 data type
b) The query raises error since arithmetic operations cannot be performed on date colum

XIV. Which expressions do NOT return NULL values?
a) SELECT ((10 + 20) * 50) + null from dual; b). SELECT 'this is a '||null||'test with null dual;
c). SELECT null/0 from dual; d). SELECT null||'test'||null as "Test" from dual;

XV. Determine the output of the query

SELECT 'Tutorial"s Point compiles technical tutorials' FROM DUAL;

a) Tutorial"s Point compiles technical tutorials b).Tutorial's Point compiles technical tutorials

c) 'Tutorial"s Point compiles technical tutorials'

d) Raises exception "ORA-01756: quoted string not properly terminated"

XVI. What does the restriction of rows returned by a SELECT statement known as?

a) Retrieval b). Projection c). Restricting d). Selection

11. a) (i) Construct B+ tree for the given set of values where order of N=4 12,14,18,20,22,23,34, 45,46,56,67,68,78,89,90,93 (14)

(ii) Consider schedule S with transaction T1 and T2. T1 transfer Rs. 150 from account A to C and T2 adds Rs.50 into account A. Prepare concurrent schedule with two phase locking protocol (2)

(OR)

b) Construct B tree for the given set of values where order of N=5 C, N, G, A, H, E, K, Q, M, F, W, L, T, Z, D, P, R, X, Y, S (16)

12. a) Consider the following table and execute the queries.

PRODUCTS (PRODUCT_ID, PRODUCT_NAME);

SALES (SALE_ID, PRODUCT_ID, YEAR, Quantity, PRICE)

Product Table contains the following data:

PRODUCT_ID	PRODUCT_NAME
100	Nokia
200	IPhone
300	Samsung
400	LG

The sales table contains the following data.

SALE_ID	PRODUCT_ID	YEAR	QUANTITY	PRICE
1	100	2010	25	5000
2	100	2011	16	5000
3	100	2012	8	5000
4	200	2010	10	9000
5	200	2011	15	9000
6	200	2012	20	9000
7	300	2010	20	7000
8	300	2011	18	7000
9	300	2012	20	7000

I. Write a SQL query to find the products which have continuous increase in sales every year. (4)

II. Write a SQL query to find the products which does not have sales at all. (4)

III. Write a SQL query to find the products whose sales decreased in 2012 compared to 2011. (4)

IV. Write a query to select the top product sold in each year. (4)

(OR)

b) (i) Match the following: (8)

I.	Page	–	Fast Access.
II.	Growing phase	–	Waiting
III.	File base system	–	Release locks but not obtain locks
IV.	Serializability	-	No transitive Dependency exist
V.	Deadlock	–	Obtain locks but not release any locks
VI.	3 NF	–	View
VII.	Shrinking phase	–	Atomicity
VIII.	Indexing	–	Fixed Length Block

(ii) What is the need for deadlock prevention? (2)

(iii) Explain the various Deadlock prevention methods. (6)

13. a) (i) Describe in detail about Object Oriented database. (8)

(ii) Explain Data Mining with a neat diagram. (8)

(OR)

b) (i) What is meant by XML ? (2)

(ii) Explain the Structure of XML with an example. (6)

(iii) Discuss the concept of Data Warehousing with a neat diagram. (8)
