**POORNIMA UNIVERSITY, JAIPUR**

**END SEMESTER EXAMINATION, APRIL 2023**

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|  | **2BT4139** | Roll No. | Total Printed Pages: 2 |
| **2BT4139** |  |
| B. Tech. II Year IV Semester (Main/Back) End Semester Examination, April 2023  **(CE / CC / AIDS / CS)** | |
| **BCECCE4103 : Relational Database Management System** | | | |

# Time: **3** Hours. Total Marks: **60**

Min. Passing Marks: **21**

Attempt **five** questions selecting one question from each Unit. There is internal choice from Unit I to Unit V. Marks of each question or its parts are indicated against each question / parts. Draw neat sketches wherever necessary to illustrate the answer. Assume missing data suitably (if any) and clearly indicate the same in the answer.

Use of following supporting material is permitted during examination for this subject.

# **1.--------------------------Nil--------------------** **2.------------------Nil-----------------------**

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|  |  | **UNIT-I (CO1)** | **Marks** | **Bloom Level** |
| **Q.1** | **(a)** | Define keys in DBMS. Explain the distinction among candidate key, super key and primary key. | **(6)** | **4** |
|  |  |  |  |  |
|  | **(b)** | Explain the three-tier architecture of database system. | **(6)** | **2** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.2** | **(a)** | What is an ER-model? Construct an ER diagram for an organization by considering the following relations:  Employee (Name, Ssn, Bdate, Address, Sex, Salary, Superssn, Dno)  Department (Dname, Dno, Mgrssn, Mgrstratdate) Dept\_Location (Dnumber, Dlocation)  Works\_On (Essn, Pno, Hours)  Project (Pname, Pnumber, Plocation, Dnum)  Dependent (Essn, Dependent\_Name, Sex, Bdate, Relationship). | **(6)** | **3** |
|  |  |  |  |  |
|  | **(b)** | Compare generalization, specialization, and aggregation with suitable example. | **(6)** | **2** |
|  |  |  |  |  |
|  |  | **UNIT-II (CO2)** |  |  |
|  |  |  |  |  |
| **Q.3** | **(a)** | Assume that a table EMP (empid number(3), empname char(20), dept char(10), salary number(6)) has been created and populated. Write a relational algebra expression to display empid, empname, salary for all those employees which belong to either "PHY" or "CHEM" dept. | **(6)** | **1** |
|  |  |  |  |  |
|  | **(b)** | Write the SQL commands to create and populate the below 2 tables:  BOOK Table PUB Table   |  |  |  | | --- | --- | --- | | Pid | Pname | Pmobile | | P1 | PHI | 1234567890 | | P2 | Khanna | 4567890123 | | P5 | McGraw Hill | 7890123456 |  |  |  |  | | --- | --- | --- | | Bookid | Title | Pid | | BOOK101 | Virtualization | P1 | | BOOK201 | Data Science | P2 | | BOOK301 | Artificial Intelligence | P3 |   Join these 2 tables using the NATURAL JOIN SQL command and show the command and the result. | **(6)** | **6** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.4** | **(a)** | What is normalization? Explain 1 NF, 2 NF, 3 NF and BCNF? | **(6)** | **1** |
|  |  |  |  |  |
|  |  |  |  |  |
|  | **(b)** | You have two tables of Student(S\_id, Name, Class, Age, C\_type) and Courses (C\_type, C\_name). Perform full outer join on both the tables. | **(6)** | **6** |
|  |  | **UNIT-III (CO3)** |  |  |
|  |  |  |  |  |
| **Q.5** | **(a)** | Create a table A (empname, city, salary). Create another table B (empname, city, salary). Write the syntax of UNION, INTERSECT and MINUS commands, explain the purpose of the commands and write the results. Fill up 3 suitable records in table A and B. | **(6)** | **2** |
|  |  |  |  |  |
|  | **(b)** | Write the result of following SQL commands:  i) select floor (6.6) from dual;  ii) select round (6.5) from dual;  iii) select mod (27,4) from dual;  iv) select Initcap (‘ankita goyal’) from dual;  v) select lpad(‘Kumar’, 10, ‘$’) from dual;  vi) select rpad(‘Gautam’, 10, ‘$’) from dual; | **(6)** | **6** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.6** | **(a)** | Write the SQL commands to create table EMP (empid number(3), empname char(10), city char(10)) and another table HRA (city char(10), hra number(5)). Write the SQL command and explain the concept of Cartesian Product or Cross Join. Fill up 3 suitable records in each table. | **(6)** | **1** |
|  |  |  |  |  |
|  | **(b)** | Consider an employee table. Write query for Aggregate functions: Sum(), Avg(), Min(), Max() and Count(). | **(6)** | **6** |
|  |  |  |  |  |
|  |  | **UNIT-IV (CO4)** |  |  |
|  |  |  |  |  |
| **Q.7** | **(a)** | Assume that a table EMP (empid number(3), empname char(20), dept char(10), salary number(6)) has been created and populated. Using the concept of CURSOR, display all the details of all the employees. If salary >= 50000 , then display "Good Salary" otherwise "Bad Salary" for each record. | **(6)** | **2** |
|  |  |  |  |  |
|  | **(b)** | Write a PL/SQL program to print numbers 1 to 10 using simple loop. | **(6)** | **5** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.8** | **(a)** | Write a PL/SQL program using IF-THEN-ELSE which takes 2 numbers A and B as input from the user and displays the bigger number. | **(6)** | **1** |
|  |  |  |  |  |
|  | **(b)** | Write a PL/SQL procedure which takes 2 integer numbers as input and gives their product (multiplication) as output.  What is the purpose of SET SERVEROUTPUT ON command? | **(6)** | **3** |
|  |  |  |  |  |
|  |  | **UNIT V (CO5)** |  |  |
|  |  |  |  |  |
| **Q.9** | **(a)** | Differentiate between a Row Level Trigger and Statement Level Trigger. | **(6)** | **4** |
|  |  |  |  |  |
|  | **(b)** | Write short note on PL/SQL Packages. | **(6)** | **1** |
|  |  |  |  |  |
|  |  | **OR** |  |  |
|  |  |  |  |  |
| **Q.10** | **(a)** | Define wrapping in PL/SQL. Write the syntax for wrapping a PL/SQL program. | **(6)** | **2** |
|  |  |  |  |  |
|  | **(b)** | What is a trigger in PL/SQL. Write a trigger that does not allow user to change the details of employee working as Managers. | **(6)** | **5** |

*Bloom’s Level: 1. Knowledge 2. Comprehension 3. Application 4. Analysis 5. Synthesis 6. Evaluation*