**Group B**

Attempt all six questions:

1. Define normalization and its types?
2. what is data model? Illustrate the differences between logical and physical data independence?
3. Write DDL commands for creating the table as stated below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table Name | s.no. | Field Name | Fields type | Field size | Constraints |
| Employee | 1 | eid | Integer | --- | Primary key |
| 2 | ename | char | 20 | Cannot be null |
| 3 | eaddress | Varchar | 50 | Can either be ‘DBA ’or ‘system analyst’ |
| 4 | esalary | Decimal | 10.2 | Between 31000 and 81000 |
| 5 | deptno | Integer | -- | Foreign key |

4. Define BCNF. Convert the following table up to 2NF.

Student

|  |  |  |  |
| --- | --- | --- | --- |
| Sid | Sname | Course-id | Credit |
| 101 | John | BE-101 | 4 |
| 102 | John | BE-109 | 3 |
| 103 | Maria | CE-111 | 2 |
| 104 | Ryan | CE-117 | 1 |
| 105 | leen | BE-101 | 4 |

5.Consider the relational schema given below:

College (collegecode, collegename, location)

Student (regno, fname, Iname, age, phone, city, collegecode)

Course (ccode, title, credit)

Enroll (regno, ccode, marks)

Now write the Relation Algebra and SQL for each of the following questions.

1. List the name of all students and the place where they study.
2. Find the name of student who have enrolled in the course ‘DBMS’.
3. Find the courses that have highest number of credits.
4. Delete all subjects with age above 25.
5. Increase the age by 1 who live in Bhaktapur.

6.Write an SQL query by using wildcard operator.

1. To retrieve the names of customers whose last name starts with the letter 'S'.
2. To retrieve the names of products that contain the word 'Phone' anywhere in their name.
3. To retrieve the names of employees whose last name ends with the letters 'son’.
4. To retrieve the names of customers whose first name contains exactly five characters.
5. To retrieve the names of products that start with the letter 'M' and end with the letter 'r’.

**Group C**

Long questions:

1. Consider the following scenario:

Student

|  |  |
| --- | --- |
| Sid | Sname |
| 1 | AA |
| 2 | BB |
| 3 | CC |
| 4 | DD |
| 5 | EE |

Intern

|  |  |  |
| --- | --- | --- |
| I\_id | InternDepartment | Sid |
| 1001 | Java | 2 |
| 1002 | Python | null |
| 1003 | Larabel | 5 |

1. Write the sql query in oracle Draw the table student considering above attributes.
2. Write the sql query in oracle Draw the table intern considering above attributes and add the foreign key as sid.
3. Write a sql query for

* Join (Natural Join)
* Left Outer Join
* Right Outer Join
* Full Outer Join

1. Write the output assuming the data in the above table for every join operation and write the output.
2. a) Draw a Er-diagram to capture the following scenario.

A company has a number of employees. The attributes of employee includes eid(unique), ename, eaddress(composite), phone(multivalued) and email. The company has several projects. Attributes of project include pid (identifier) and pname. The project’s start-date for each employee is also recorded. Each employee may be assigned to one or more projects. A project must have at least one employee assigned. Projects use different parts which are supplied by supplier. A supplier may supply many parts. Parts have pno(unique), partname and quantity. Attributes of supplier include sid(identifier), sname, saddress(composite).

b) convert above Er-diagram into relational table schema.