INDEX

PART – A

Q1. Create a table employee by specifying the not null constraints.

Column name	Data type	Constraints
EmpNo	Int	Primary key, auto increment
Name	Varchar(25)	
Designation	Varchar(20)	
Dept	Varchar(25)	
Gender	Char(1)	'M' or 'F'
Salary	Decimal (9,2)	

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create table employee: -

```
mysql> create table employee
   -> (empno int(6) auto_increment primary key,
   -> name varchar(25),
   -> desg varchar(20),
   -> dept varchar(25),
   -> gender char(1),
   -> salary decimal(9,2),
   -> check (gender in('M','F')));
Query OK, 0 rows affected, 1 warning (0.95 sec)
```

To Insert Record into table employee: -

```
mysql> insert into employee(name,desg,dept,gender,salary)
   -> values('abc','HR','Marketing','F',25000);
Query OK, 1 row affected (0.09 sec)
```

Execute the following queries: -

a) Display information about all employees.

mysql> select * from employee;

```
+-------+------+------+-------------+--------+----------+
| empno | name | desg | dept        | gender | salary   |
+-------+------+------+-------------+--------+----------+
|     1 | abc  | HR   | Marketing   | F      | 25000.00 |
|     2 | nhal | HR   | Production  | M      |  5000.00 |
|     3 | Anu  | HR   | Sales       | F      | 30000.00 |
|     4 | ABhi | HR   | Marketing   | M      | 35000.00 |
|     5 | Arun | HR   | Advertising | M      | 25000.00 |
+-------+------+------+-------------+--------+----------+
```

b) Display EMPNO, NAME and DESIGNATION of all employees.

mysql> select empno,name,desg from employee;

```
+-------+------+------+
| empno | name | desg |
+-------+------+------+
|     1 | abc  | HR   |
|     2 | nhal | HR   |
|     3 | Anu  | HR   |
|     4 | ABhi | HR   |
|     5 | Arun | HR   |
+-------+------+------+
```

5 rows in set (0.00 sec)

c) Display the details of all female employees.

mysql> select * from employee where gender='F';

```
+-------+------+------+-----------+--------+----------+
| empno | name | desg | dept      | gender | salary   |
+-------+------+------+-----------+--------+----------+
|     1 | abc  | HR   | Marketing | F      | 25000.00 |
|     3 | Anu  | HR   | Sales     | F      | 30000.00 |
+-------+------+------+-----------+--------+----------+
```

2 rows in set (0.00 sec)

d) List the different departments.

mysql> select distinct(dept) from employee;

```
+-------------+
| dept        |
+-------------+
| Marketing   |
| Production  |
| Sales       |
| Advertising |
+-------------+
```

rows in set (0.00 sec)

e) List EMPNO, NAME and DESIGNATION of all employees whose salary is more than 15,000.

mysql> select empno,name,desg from employee where salary>15000;

```
+-------+------+------+
| empno | name | desg |
+-------+------+------+
|     1 | abc  | HR   |
|     3 | Anu  | HR   |
|     4 | ABhi | HR   |
|     5 | Arun | HR   |
+-------+------+------+
```

4 rows in set (0.00 sec)

f) Display the highest and lowest salary of each DEPARTMENT.

mysql> select dept,max(salary),min(salary) from employee group by dept;

```
+-------------+-------------+-------------+
| dept        | max(salary) | min(salary) |
+-------------+-------------+-------------+
| Marketing   |    35000.00 |    25000.00 |
| Production  |     5000.00 |     5000.00 |
| Sales       |    30000.00 |    30000.00 |
| Advertising |    25000.00 |    25000.00 |
+-------------+-------------+-------------+
```

4 rows in set (0.02 sec)

g) Display the number of employees in each DEPARTMENT.

```
mysql> select dept, count(*) 'Employees' from employee group by dept;
+-------------+-----------+
| dept        | Employees |
+-------------+-----------+
| Marketing   |         2 |
| Production  |         1 |
| Sales       |         1 |
| Advertising |         1 |
+-------------+-----------+
4 rows in set (0.00 sec)
```

h) Display the number of employees in Marketing and Sales department.

```
mysql> select dept, count(*) 'Employees' from employee where dept
   -> in('Sales','Marketing') group by dept;
+-----------+-----------+
| dept      | Employees |
+-----------+-----------+
| Marketing |         2 |
| Sales     |         1 |
+-----------+-----------+
2 rows in set (0.00 sec)
```

2) Create a table client_master with the following fields.

Column_name	Data Type	Others
Client_no	Varchar(6)	Primary key
Name	Varchar(20)	Not null
Address	Varchar(25)	
City	Varchar(20)	
Pincode	Decimal(6)	
State	Varchar(20)	
Bal_due	Decimal(7,2)	Not null

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create a Table: -

```
Mysql> create table client_master(
    -> ClientNo varchar(6) primary key,
    -> cname varchar(20) not null,
    -> address varchar(25),
    -> city  varchar(20),
    -> pincode decimal(6),
    -> state varchar(20),
    -> balDue decimal(7,2) not null
    -> );
```

To Insert Records: -

```
mysql> insert into Client_Master values ('c01005','Akash','Manali','575063','Himachal
Pradesh',1000);
Query OK, 1 row affected (0.00 sec)
```

mysql> select * from Client_Master;

```
+----------+----------+----------------------+--------+------------------+---------+
| ClientNo | cname    | address              | city   | state            | balDue  |
+----------+----------+----------------------+--------+------------------+---------+
| c01001   | Ponnu    | Pandeshwar,Manglore  | 575001 | Karnataka        |  500.00 |
| c01002   | Mukesh   | Thalangara,Kasargod  | 575002 | Kerala           |  400.00 |
| c01003   | Siddi    | Baga                 | 575067 | Goa              |  300.00 |
| c01004   | Aswanth  | Dongiri              | 575063 | Mumbai           |  600.00 |
| c01005   | Akash    | Manali               | 575063 | Himachal Pradesh | 1000.00 |
| c01006   | Sidharth | Pumpwell,Manglore    | 575002 | Karnataka        |  650.00 |
| c01007   | Manoj    | Tirur,Malapuram      | 671122 | Kerala           |  900.00 |
| c01008   | Arjun    | Church,Bangalore     | 675671 | Karnataka        | 1500.00 |
| c01009   | Abhijith | Koyilandi,calicut    | 675874 | Kerala           | 1200.00 |
| c01010   | Vishnu   | RamanNagar,Hydrabad  | 676789 | Telangana        | 2000.00 |
+----------+----------+----------------------+--------+------------------+---------+
```

10 rows in set (0.00 sec)

Implement the following Queries: -

a) Describe the structure of Client_Master.

mysql> Describe Client_Master;

```
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| ClientNo | varchar(6)  | NO   | PRI | NULL    |       |
| cname    | varchar(25) | NO   |     | NULL    |       |
| address  | varchar(25) | YES  |     | NULL    |       |
| city     | varchar(25) | YES  |     | NULL    |       |
| state    | varchar(25) | YES  |     | NULL    |       |
| balDue   | decimal(7,2)| NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

6 rows in set (0.00 sec)

b) From the table Client_Master create a new table client1 that contains only Client_no, Name with all records of Client_Master.

Create Table client1;-

mysql> create table client1 as (select ClientNo,cname from Client_Master);
Query OK, 10 rows affected (0.03 sec)
Records: 10 Duplicates: 0 Warnings: 0

```
mysql> select * from client1;
+----------+----------+
| ClientNo | cname    |
+----------+----------+
| c01001   | Ponnu    |
| c01002   | Mukesh   |
| c01003   | Siddi    |
| c01004   | Aswanth  |
| c01005   | Akash    |
| c01006   | Sidharth |
| c01007   | Manoj    |
| c01008   | Arjun    |
| c01009   | Abhijith |
| c01010   | Vishnu   |
+----------+----------+
10 rows in set (0.00 sec)
```

c) From the table Client_Master create a new table client2 that has the same structure as Client_Master but with no records.

```
mysql> create table client2 as(select * from Client_Master where 1=2);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from client2;
Empty set (0.00 sec)
```

d) Insert records into table client3 from the Client_Master table where the client_no is 'C01001'.

To create table client3: -

```
mysql> create table client3 as(select * from Client_Master where ClientNo='c01001');
Query OK, 1 row affected (0.02 sec)
Records: 1  Duplicates: 0  Warnings: 0

mysql> select * from client3;

+----------+-------+--------------------+--------+-----------+--------+
| ClientNo | cname | address            | city   | state     | balDue |
+----------+-------+--------------------+--------+-----------+--------+
| c01001   | Ponnu | Pandeshwar,Manglore | 575001 | Karnataka | 500.00 |
+----------+-------+--------------------+--------+-----------+--------+
1 row in set (0.00 sec)
```

e) For every client in Client_Master table increase the balDue by 10%.

```
mysql> update Client_Master set balDue=balDue+(0.1+balDue);
Query OK, 10 rows affected (0.01 sec)
Rows matched: 10  Changed: 10  Warnings: 0

mysql> select * from Client_Master;
```

ClientNo	cname	address	city	state	balDue
c01001	Ponnu	Pandeshwar,Manglore	575001	Karnataka	1000.10
c01002	Mukesh	Thalangara,Kasargod	575002	Kerala	800.10
c01003	Siddi	Baga	575067	Goa	600.10
c01004	Aswanth	Dongiri	575063	Mumbai	1200.10
c01005	Akash	Manali	575063	Himachal Pradesh	2000.10
c01006	Sidharth	Pumpwell,Manglore	575002	Karnataka	1300.10
c01007	Manoj	Tirur,Malapuram	671122	Kerala	1800.10
c01008	Arjun	Church,Bangalore	675671	Karnataka	3000.10
c01009	Abhijith	Koyilandi,calicut	675874	Kerala	2400.10
c01010	Vishnu	RamanNagar,Hydrabad	676789	Telangana	4000.10

10 rows in set (0.00 sec)

f) Update table Client_Master change the contents of the field Name to 'Vijay Kadam' and the contents of the field Address to 'SCT Jay Apmts' for the record with clientNo 'c00002'.

```
mysql> update Client_Master set cname='Vijay kadam',address='sct jay appartment'
where ClientNo='c01002';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

g) Add a new column by name Penalty number (10,2) to table client_master.

```
mysql> alter table Client_Master add(penalty decimal(10,2));
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

mysql> describe Client_Master;

```
+----------+---------------+------+-----+---------+-------+
| Field    | Type          | Null | Key | Default | Extra |
+----------+---------------+------+-----+---------+-------+
| ClientNo | varchar(6)    | NO   | PRI | NULL    |       |
| cname    | varchar(25)   | NO   |     | NULL    |       |
| address  | varchar(25)   | YES  |     | NULL    |       |
| city     | varchar(25)   | YES  |     | NULL    |       |
| state    | varchar(25)   | YES  |     | NULL    |       |
| balDue   | decimal(7,2)  | NO   |     | NULL    |       |
| penalty  | decimal(10,2) | YES  |     | NULL    |       |
+----------+---------------+------+-----+---------+-------+
```

7 rows in set (0.00 sec)

h) Change the size of the column Penalty to (8,2) in Client_Master.

mysql> alter table Client_Master modify penalty decimal(8,2);
Query OK, 10 rows affected (0.05 sec)
Records: 10 Duplicates: 0 Warnings: 0

mysql> describe Client_Master;

```
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| ClientNo | varchar(6)  | NO   | PRI | NULL    |       |
| cname    | varchar(25) | NO   |     | NULL    |       |
| address  | varchar(25) | YES  |     | NULL    |       |
| city     | varchar(25) | YES  |     | NULL    |       |
| state    | varchar(25) | YES  |     | NULL    |       |
| balDue   | decimal(7,2)| NO   |     | NULL    |       |
| penalty  | decimal(8,2)| YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

7 rows in set (0.01 sec)

i) Change the name of table Client_Master to Client_Master1.

mysql> rename table Client_Master to Client_Master1;
Query OK, 0 rows affected (0.02 sec)

3) Create a table PATIENT and write the following SQL Queries.

Column name	Data type	Null	Others
PatientID	Int	Not null	Primary key, auto increment
Name	Varchar(25)	Not null	
DateofBirth	Date	Not null	
Lastvisitdate	Date	Not null	
Nextvisitdate	Date	Null	

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To Create a table patient: -

```
mysql> create table patient
   -> (patientid int not null auto_increment primary key,
   -> name varchar(25) not null,
   -> dob date not null,
   -> lvdate date not null,
   -> nvdate date);
Query OK, 0 rows affected (0.02 sec)
```

To Insert Records: -

```
mysql> insert into patient(name,dob,lvdate)
   -> values('Shyam','2015-03-04','2022-01-15');
Query OK, 1 row affected (0.01 sec)
```

Similary Insert 09 Records.

mysql> select * from patient;

```
+-----------+--------+------------+------------+--------+
| patientid | name   | dob        | lvdate     | nvdate |
+-----------+--------+------------+------------+--------+
|         1 | Shyam  | 2015-03-04 | 2022-01-15 | NULL   |
|         2 | Arun   | 2012-04-14 | 2021-02-15 | NULL   |
|         3 | Amal   | 2013-04-20 | 2022-02-25 | NULL   |
|         4 | Anu    | 2014-03-26 | 2021-03-18 | NULL   |
|         5 | Sharon | 2015-03-04 | 2022-01-15 | NULL   |
|         6 | Sanju  | 2016-01-09 | 2021-01-30 | NULL   |
|         7 | Kichu  | 2016-03-08 | 2021-04-30 | NULL   |
|         8 | Nandu  | 2015-06-11 | 2023-02-22 | NULL   |
|         9 | Vimal  | 2014-02-11 | 2022-02-12 | NULL   |
|        10 | Vinod  | 2013-06-27 | 2023-05-25 | NULL   |
+-----------+--------+------------+------------+--------+
```

10 rows in set (0.00 sec)

Execute the Following Queries: -

a) Display patients who were born in a particular year and sort by birth-month.

mysql> select * from patient where year(dob)=2015 order by month(dob);

```
+-----------+--------+------------+------------+--------+
| patientid | name   | dob        | lvdate     | nvdate |
+-----------+--------+------------+------------+--------+
|         1 | Shyam  | 2015-03-04 | 2022-01-15 | NULL   |
|         5 | Sharon | 2015-03-04 | 2022-01-15 | NULL   |
|         8 | Nandu  | 2015-06-11 | 2023-02-22 | NULL   |
+-----------+--------+------------+------------+--------+
```

3 rows in set (0.00 sec)

b) List the age of all the patients.

mysql> select round (datediff(curdate(), dob)/365) 'age' from patient;

```
+------+
| age  |
+------+
|    8 |
|   11 |
|   10 |
|    9 |
|    8 |
|    7 |
|    7 |
|    8 |
|    9 |
|   10 |
+------+
```
10 rows in set (0.00 sec)

c) Display the names of patients who are 18 years old or younger.

mysql> select name,round(datediff(curdate(),dob)/365) 'age' from patient where
-> (datediff(curdate(),dob)/365)<=18;

```
+--------+------+
| name   | age  |
+--------+------+
| Shyam  |    8 |
| Arun   |   11 |
| Amal   |   10 |
| Anu    |    9 |
| Sharon |    8 |
| Sanju  |    7 |
| Kichu  |    7 |
| Nandu  |    8 |
| Vimal  |    9 |
| Vinod  |   10 |
+--------+------+
```
10 rows in set (0.00 sec)

d) Schedule the next visit of 'Shyam' to be 6 months from now.

```
mysql> update patient set nvdate=adddate(now(),interval 6 month) where
name='Shyam';
Query OK, 1 row affected, 1 warning (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 1

mysql> select * from patient;
+-----------+--------+------------+------------+------------+
| patientid | name   | dob        | lvdate     | nvdate     |
+-----------+--------+------------+------------+------------+
|         1 | Shyam  | 2015-03-04 | 2022-01-15 | 2023-11-30 |
|         2 | Arun   | 2012-04-14 | 2021-02-15 | NULL       |
|         3 | Amal   | 2013-04-20 | 2022-02-25 | NULL       |
|         4 | Anu    | 2014-03-26 | 2021-03-18 | NULL       |
|         5 | Sharon | 2015-03-04 | 2022-01-15 | NULL       |
|         6 | Sanju  | 2016-01-09 | 2021-01-30 | NULL       |
|         7 | Kichu  | 2016-03-08 | 2021-04-30 | NULL       |
|         8 | Nandu  | 2015-06-11 | 2023-02-22 | NULL       |
|         9 | Vimal  | 2014-02-11 | 2022-02-12 | NULL       |
|        10 | Vinod  | 2013-06-27 | 2023-05-25 | NULL       |
+-----------+--------+------------+------------+------------+
10 rows in set (0.00 sec)
```

4) Create a table BOOK and write the following SQL Queries.

Column_Name	Data_Type	Others
Book_Id	Varchar(5)	Primary Key
Title	Varchar(25)	Not Null
Publisher	Varchar(25)	Not Null
Category	Varchar(20)	
Year	Year	
Price	Decimal(6,2)	

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create a table book: -

```
mysql> create table book
   -> (Book_Id varchar(5) primary key,
   -> Title varchar(25) not null,
   -> Publisher varchar(25) not null,
   -> Category varchar(20),
   -> YOP year,
   -> Price decimal(6,2));
Query OK, 0 rows affected (0.04 sec)
```

To Insert Records: -

```
insert into book(Book_Id,title,publisher,category,yop,price)values('B001','Basics of networking','Microsoft','Computer','2010','2500');

mysql> select * from book;
```

```
+---------+---------------------+----------------------+----------+------+---------+
| Book_Id | Title               | Publisher            | Category | YOP  | Price   |
+---------+---------------------+----------------------+----------+------+---------+
| B001    | Basic of Networking | Microsoft            | Computer | 2010 | 2500.00 |
| B002    | Basics of C         | Apress               | Computer | 2011 | 3500.00 |
| B003    | Datastructers       | Pearson              | Computer | 2007 | 2800.00 |
| B004    | Introduction to OOPS | Cambridge University | Computer | 2007 | 5000.00 |
| B005    | Introduction to AI  | Microsoft            | Computer | 2009 | 3000.00 |
+---------+---------------------+----------------------+----------+------+---------+
5 rows in set (0.00 sec)
```

Execute the following queries: -

a) List the details of the publishers starting with the character 'M'.

mysql> select * from book where Publisher like 'M%';

```
+---------+--------------------+-----------+----------+------+---------+
| Book_Id | Title              | Publisher | Category | YOP  | Price   |
+---------+--------------------+-----------+----------+------+---------+
| B001    | Basic of Networking | Microsoft | Computer | 2010 | 2500.00 |
| B005    | Introduction to AI  | Microsoft | Computer | 2009 | 3000.00 |
+---------+--------------------+-----------+----------+------+---------+
```
2 rows in set (0.01 sec)

b) List the publishers having 'a' as the second character in their names.

mysql> select Publisher from book where Publisher like '_A%';

```
+----------------------+
| Publisher            |
+----------------------+
| Cambridge University |
+----------------------+
```
1 row in set (0.01 sec)

c) Find the books published in the year 2010.

mysql> select * from book where YOP=2010;

```
+---------+--------------------+-----------+----------+------+---------+
| Book_Id | Title              | Publisher | Category | YOP  | Price   |
+---------+--------------------+-----------+----------+------+---------+
| B001    | Basic of Networking | Microsoft | Computer | 2010 | 2500.00 |
+---------+--------------------+-----------+----------+------+---------+
```
1 row in set (0.00 sec)

d) Display the BOOK_ID, TITLE, PUBLISHER of all books in the descending order of the year.

mysql> select Book_Id,Title,Publisher from book order by YOP desc;

```
+---------+----------------------+----------------------+
| Book_Id | Title                | Publisher            |
+---------+----------------------+----------------------+
| B002    | Basics of C          | Apress               |
| B001    | Basic of Networking  | Microsoft            |
| B005    | Introduction to AI   | Microsoft            |
| B003    | Datastructers        | Pearson              |
| B004    | Introduction to OOPS | Cambridge University |
+---------+----------------------+----------------------+
```

5 rows in set (0.00 sec)

e) Display the details of all books other than Microsoft Press publishers.

mysql> select * from book where Publisher not in ('Microsoft');

```
+---------+----------------------+----------------------+----------+------+---------+
| Book_Id | Title                | Publisher            | Category | YOP  | Price   |
+---------+----------------------+----------------------+----------+------+---------+
| B002    | Basics of C          | Apress               | Computer | 2011 | 3500.00 |
| B003    | Datastructers        | Pearson              | Computer | 2007 | 2800.00 |
| B004    | Introduction to OOPS | Cambridge University | Computer | 2007 | 5000.00 |
+---------+----------------------+----------------------+----------+------+---------+
```

3 rows in set (0.00 sec)

f) Display TITLE, PRICE of all books with PRICE more than 2000 and less than 3000. (Using BETWEEN operator)

mysql> select Title,Price from book where Price between 2000 and 3000;

```
+----------------------+---------+
| Title                | Price   |
+----------------------+---------+
| Basic of Networking  | 2500.00 |
| Datastructers        | 2800.00 |
| Introduction to AI   | 3000.00 |
+----------------------+---------+
```

3 rows in set (0.00 sec)

5) Create the following tables by identifying primary and foreign keys. Specify the not null property for mandatory keys.

SUPPLIERS (SNO, SNAME, SADDR, CITY)

ITEMS (INO, SNO, INAME, QTY)

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create table suppliers: -

```
mysql> create table suppliers
   -> (s_no varchar(4) primary key,
   -> sname varchar(25) not null,
   -> saddr varchar(15) not null,
   -> city varchar(15) not null);
Query OK, 0 rows affected (0.02 sec)
```

To insert records to table suppliers: -

```
mysql> insert into suppliers (s_no,sname,saddr,city)
   -> values ('S001','Microtech','Pumpwell','Mangalore');
Query OK, 1 row affected (0.00 sec)
```

Similarly Insert 04 records.

```
mysql> select * from suppliers;
+------+-------------+-----------+-----------+
| s_no | sname       | saddr     | city      |
+------+-------------+-----------+-----------+
| S001 | Microtech   | Pumpwell  | Mangalore |
| S002 | Cats        | Bekal     | Kasaragod |
| S003 | Microsoft   | Periya    | Kasaragod |
| S004 | Electrotech | Mukka     | Surathkal |
| S005 | Polytech    | Palakunnu | Kasaragod |
+------+-------------+-----------+-----------+
5 rows in set (0.00 sec)
```

To create table Items: -

```
mysql> create table items
    -> (i_no varchar(4) primary key,
    -> s_no varchar(5),
    -> iname varchar(25) not null,
    -> qty int(3) not null,
    -> foreign key(s_no) references suppliers(s_no));
Query OK, 0 rows affected, 1 warning (0.03 sec)
```

To insert Records into table Items: -

```
mysql> insert into items (i_no,s_no,iname,qty)
    -> values('I001','S001','Keyboard',2);
Query OK, 1 row affected (0.01 sec)
```

Similarly Insert 04 records.

```
mysql> select * from items;
+------+------+----------+-----+
| i_no | s_no | iname    | qty |
+------+------+----------+-----+
| I001 | S001 | Keyboard |   2 |
| I002 | S002 | Mouse    |   4 |
| I003 | S003 | Camera   |   5 |
| I004 | S004 | Pen      |  10 |
| I005 | S005 | Mobile   |   7 |
+------+------+----------+-----+
5 rows in set (0.00 sec)
```

Execute the following queries:

a) List item and Supplier details.

```
mysql> select sname,iname from suppliers,items where suppliers.s_no=items.s_no;
+-------------+----------+
| sname       | iname    |
+-------------+----------+
| Microtech   | Keyboard |
| Cats        | Mouse    |
| Microsoft   | Camera   |
| Electrotech | Pen      |
| Polytech    | Mobile   |
+-------------+----------+
5 rows in set (0.00 sec)
```

b) List the names of the suppliers who are supplying Keyboard.

```
mysql> select sname from suppliers,items where suppliers.s_no=items.s_no and
        Items.iname='Keyboard';
+-----------+
| sname     |
+-----------+
| Microtech |
+-----------+
1 row in set (0.00 sec)
```

c) Display the items supplied by 'Microtech'.

```
mysql> select iname from suppliers,items where suppliers.s_no=items.s_no
and suppliers.sname='Microtech';
+----------+
| iname    |
+----------+
| Keyboard |
+----------+
1 row in set (0.00 sec)
```

d. List the items supplied by the suppliers 'Cats' and 'Electrotech'.

```
mysql> select iname from suppliers,items where suppliers.s_no=items.s_no and
suppliers.sname in('Cats','Electrotech');
+-------+
| iname |
+-------+
| Mouse |
| Pen   |
+-------+
2 rows in set (0.00 sec)
```

PART – B

1) Create two tables Emp_master and Attendance with the following fields. Emp_master(emp_id, ename, eaddr, phone, email, doj, dor), Attendance (emp_id,wom,mhrs,thrs,whrs,trhrs,fhrs,shrs,suhrs). Identify Primary and Foreign keys, specify the not null property for mandatory keys. (Check constraint should be applied for wom<=5 and doj.

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create Emp_Master table: -

```
mysql> create table Emp_master (emp_id varchar(4) primary key,
    -> ename varchar(20) not null,
    -> eaddr varchar(20) not null,
    -> phone bigint(12),
    -> email varchar(20) not null,
    -> doj date, dor date, check (doj<dor)
    -> );
Query OK, 0 rows affected (0.02 sec)
```

To Insert Records to Emp_master Table: -

```
mysql> insert into emp_master(emp_id,ename,eaddr,phone,email,doj,dor)
values('E001','Mahesh','Udupi', 9438466780, 'mahe@gmail.com','2015-05-
01','2020-06-22');
Query OK, 1 row affected (0.00 sec)
```

Similarly Insert 04 records.

```
mysql> select * from emp_master;
```

emp_id	ename	eaddr	phone	email	doj	dor
E001	Mahesh	Udupi	9438466780	mahe@gmail.com	2015-05-01	2020-06-22
E002	John	Mangalore	9763767478	john@gmail.com	2015-07-01	2023-10-22
E003	Naven	Kasaragod	8926384629	navi@gmail.com	2014-02-01	2026-05-22
E004	David	Bangalore	7974635482	dave@gmail.com	2014-03-01	2025-05-22
E005	Lisa	Mumbai	9183648273	lichu@gmail.com	2016-03-01	2023-08-22

5 rows in set (0.00 sec)

To create Table Attnd: -

```
mysql> create table attnd
   -> (emp_id varchar(4),
   -> wom int(1),
   -> mhrs int(2),
   -> thrs int(2),
   -> whrs int(2),
   -> trhrs int(2),
   -> fhrs int(2),
   -> shrs int(2),
   -> suhrs int(2),
   -> check (wom<=5),
   -> foreign key(emp_id) references emp_master(emp_id) on delete cascade);
Query OK, 0 rows affected, 8 warnings (0.03 sec)
```

To Insert Record into Table Attnd: -

```
mysql> insert into attnd(emp_id,wom,mhrs,thrs,whrs,trhrs,fhrs,shrs,suhrs)
   -> values('E001',1,0,0,0,0,0,0,0);
Query OK, 1 row affected (0.01 sec)
```

Similarly Insert 04 records.

```
mysql> select * from attnd;
+--------+------+------+------+------+-------+------+------+-------+
| emp_id | wom  | mhrs | thrs | whrs | trhrs | fhrs | shrs | suhrs |
+--------+------+------+------+------+-------+------+------+-------+
| E001   |    1 |    0 |    0 |    0 |     0 |    0 |    0 |     0 |
| E002   |    1 |    5 |    4 |    5 |     3 |    4 |    0 |     2 |
| E003   |    1 |    2 |    2 |    2 |     0 |    3 |    2 |     3 |
| E004   |    1 |    3 |    2 |    0 |     2 |    3 |    2 |     3 |
| E005   |    1 |    2 |    1 |    4 |     5 |    1 |    3 |     0 |
+--------+------+------+------+------+-------+------+------+-------+
5 rows in set (0.00 sec)
```

Execute the Following Queries:

a) Display ENAME and EMAIL of all employees who are working on a Sunday.

mysql> select ename,email from emp_master where emp_id in(select emp_id from attnd where suhrs>0);

```
+-------+----------------+
| ename | email          |
+-------+----------------+
| John  | john@gmail.com |
| Naven | navi@gmail.com |
| David | dave@gmail.com |
+-------+----------------+
```
3 rows in set (0.01 sec)

b) Display total hours worked by employee Mahesh.

mysql> select mhrs+thrs+whrs+trhrs+fhrs+shrs+suhrs "Mahesh Hours" from attnd where emp_id=(select emp_id from emp_master where ename='Mahesh');

```
+--------------+
| Mahesh Hours |
+--------------+
|            0 |
+--------------+
```
1 row in set (0.00 sec)

c) Display the names of the employees who never attended the duty so far.

mysql> select ename from emp_master where emp_id in(select emp_id from attnd where mhrs+thrs+whrs+trhrs+fhrs+shrs+suhrs=0);

```
+--------+
| ename  |
+--------+
| Mahesh |
+--------+
```
1 row in set (0.00 sec)

d) Delete the records of the employees who are already retired.

mysql> delete from emp_master where dor<curdate();
Query OK, 1 row affected (0.00 sec)

mysql> select * from emp_master;

```
+--------+-------+-----------+------------+-----------------+------------+------------+
| emp_id | ename | eaddr     | phone      | email           | doj        | dor        |
+--------+-------+-----------+------------+-----------------+------------+------------+
| E002   | John  | Mangalore | 9763767478 | john@gmail.com  | 2015-07-01 | 2023-10-22 |
| E003   | Naven | Kasaragod | 8926384629 | navi@gmail.com  | 2014-02-01 | 2026-05-22 |
| E004   | David | Bangalore | 7974635482 | dave@gmail.com  | 2014-03-01 | 2025-05-22 |
| E005   | Lisa  | Mumbai    | 9183648273 | lichu@gmail.com | 2016-03-01 | 2023-08-22 |
+--------+-------+-----------+------------+-----------------+------------+------------+
```

4 rows in set (0.012 pt0 sec)

e) Display the names of the employees who have total no. of hours more than 20 hrs a week.

mysql> select ename from emp_master where emp_id in(select emp_id from attnd where mhrs+thrs+whrs+trhrs+fhrs+shrs+suhrs>20);

```
+-------+
| ename |
+-------+
| John  |
+-------+
```

1 row in set (0.00 sec)

2) Create the following tables by identifying primary and foreign keys, specify the not null property for mandatory keys.

	PRODUCT_DETAIL			
PRODNO	PNAME	QTY_AVAIL	PRICE	PROFIT IN %
P0001	Monitor	10	1500	20
P0002	Pen Drive	50	250	5
P0003	CD Drive	5	950	8
P0004	Keyboard	8	250	10

PURCHASED_DETAIL		
CNAME	PRODNO	QTY_SOLD
Raman	P0003	2
Laxman	P0002	5
Bharath	P0002	10
Manish	P0001	3
Amith	P0004	2

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create prd_deta table:

```
mysql> create table prd_det
-> (prodno varchar(5) primary key,
 -> pname varchar(15) not null,
-> qty int(2) not null,
-> price int(5) not null, -> profit int(3)
-> );
```

To Insert Record into prd_det:

```
mysql> insert into prd_det(prdno,pname,qty,price,profit)
-> values('P0001','Monitor',10,1500,20);
```

Similarly insert 04 records.

```
mysql> select * from prd_det;
+--------+----------+-----+-------+--------+
| prodno | pname    | qty | price | profit |
+--------+----------+-----+-------+--------+
| P0001  | Monitor  |  10 |  1500 |     20 |
| P0002  | Pendrive |  50 |   250 |      5 |
| P0003  | CD Drive |   5 |   950 |      8 |
| P0004  | Keyboard |   8 |   250 |     10 |
+--------+----------+-----+-------+--------+
4 rows in set (0.00 sec)
```

Create table pur_det: -

```
mysql> create table pur_det
   -> (cname varchar(15) not null,
   -> prodno varchar(5),
   -> sold int(2),
   -> foreign key(prodno) references prd_det(prodno));
Query OK, 0 rows affected, 1 warning (0.04 sec)
```

To Insert Record into table pur_det: -

```
mysql> insert into pur_det(cname,prodno,sold)
   -> values('Raman','P0003',2);
Query OK, 1 row affected (0.00 sec)
```

Similarly insert 04 records.

```
mysql> select * from pur_det;
+---------+--------+------+
| cname   | prodno | sold |
+---------+--------+------+
| Raman   | P0003  |    2 |
| Laxman  | P0002  |    5 |
| Bharath | P0002  |   10 |
| Manish  | P0001  |    3 |
| Amith   | P0004  |    2 |
+---------+--------+------+
5 rows in set (0.00 sec)
```

Execute the following Queries: -

a) Display the total amount spent by Mr. Laxman for purchasing any product.

```
mysql> select (a.price*b.sold)"Laxman Expenses" from prd_det a,pur_det b where
   -> a.prodno=b.prodno and b.cname='Laxman';
+-----------------+
| Laxman Expenses |
+-----------------+
|            1250 |
+-----------------+
1 row in set (0.00 sec)
```

b) Display the names of product for which either quantity available is less than 10 or quantity sold is less than 4.

```
mysql> select a.pname from prd_det a,pur_det b where a.prodno=b.prodno and
   -> (a.qty<10 or b.sold<4);
+----------+
| pname    |
+----------+
| Monitor  |
| CD Drive |
| Keyboard |
+----------+
3 rows in set (0.00 sec)
```

c) Display the names of product and quantity taken by Mr. Bharath.

```
mysql> select a.pname,b.sold from prd_det a,pur_det b where a.prodno=b.prodno and
   -> b.cname='Bharath';
+----------+------+
| pname    | sold |
+----------+------+
| Pendrive |   10 |
+----------+------+
1 row in set (0.00 sec)
```

d) What is the Profit earned by the shopkeeper on Manish's purchase?

```
mysql> select a.price*b.sold*a.profit/100 'Profit on Manish' from
   -> prd_det a,pur_det b where a.prodno=b.prodno and b.cname='Manish';
+------------------+
| Profit on Manish |
+------------------+
|         900.0000 |
+------------------+
1 row in set (0.00 sec)
```

e) How many pendrives were sold?

```
mysql> select sum(b.sold) "PenDrive sold" from prd_det a,pur_det b where
a.prodno=b.prodno and a.pname='Pendrive';
+---------------+
| PenDrive sold |
+---------------+
|            15 |
+---------------+
1 row in set (0.00 sec)
```

3) Create the following tables by identifying primary and foreign keys, specify the not null property for mandatory keys.

DEPARTMENT_DETAILS : -

Deptno	Deptname	Totemp	Charge/hr	Bonus
D0001	Computer	5	250	2
D0002	Maths	6	300	4
D0003	Chemistry	5	200	3
D0004	Physics	4	225	1

EMPLOYEE_DETAILS : -

Empname	Deptno	Total hours
Ramu	D0002	8
Bimu	D0001	6
Ramanath	D0003	4
Somu	D0002	7
Diren	D0004	5

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create table dept_det: -

```
mysql> create table dept_det
   -> (deptno varchar(5) primary key,
   -> dname varchar(20) not null,
   -> totemp int(2),
   -> charge int(4),
   -> bonus int(2));
Query OK, 0 rows affected, 3 warnings (0.56 sec)
```

To Insert Recordsw into table dept_det: -

```
mysql> insert into dept_det(deptno,dname,totemp,charge,bonus)
   -> values('D0001','Computer',5,250,2);
Query OK, 1 row affected (0.09 sec)
```

Similarly Insert 03 records

To create table emp_det : -

```
mysql> create table emp_det
   -> (ename varchar(20) not null,
   -> deptno varchar(5),
   -> hours int(2),
   -> foreign key(deptno) references dept_det(deptno));
Query OK, 0 rows affected, 1 warning (1.18 sec)
```

To Insert records into table emp_det: -

```
mysql> insert into emp_det(ename,deptno,hours)
   -> values('Ramu','D0002',8);
Query OK, 1 row affected (0.13 sec)
```

Similarly Insert 04 records.

Execute the following queries: -

a) **Display all employee names whose name length is 4 characters.**

```
mysql> select e.ename from emp_det e where length(e.ename) = 4;

+-------+
| ename |
+-------+
| Ramu  |
| Bimu  |
| Somu  |
+-------+
3 rows in set (0.00 sec)
```

b) Display the department name to which Mr. Ramanath belongs to.

```
mysql> select d.dname from dept_det d,emp_det e where e.deptno=d.deptno
   -> and e.ename='Ramanath';
+-----------+
| dname     |
+-----------+
| Chemistry |
+-----------+
1 row in set (0.00 sec)
```

c) Display the bonus got by Mr. Ramu.

```
mysql> select (d.charge*e.hours*d.bonus)/100 'Ramu Bonus' from dept_det
   -> d,emp_det e where e.deptno=d.deptno and e.ename='Ramu';
+------------+
| Ramu Bonus |
+------------+
|    96.0000 |
+------------+
1 row in set (0.00 sec)
```

d) Display the total number of hours taken by Maths Department.

```
mysql> select sum(e.hours) 'Hours by Maths' from dept_det d,emp_det e where
   -> e.deptno=d.deptno and d.dname='Maths';
+----------------+
| Hours by Maths |
+----------------+
|             15 |
+----------------+
1 row in set (0.00 sec)
```

e) Display different departments.

```
mysql> select distinct(dname) from dept_det;
+-----------+
| dname     |
+-----------+
| Computer  |
| Maths     |
| Chemistry |
| Physics   |
+-----------+
4 rows in set (0.00 sec)
```

4) Consider the following tables and identify primary and foreign keys, specify the not null property for mandatory keys.

STUDENT(RollNo, StudentName, Class, Major)

COURSE(CourseNo, CourseName, ProfessorName, Department)

REPORT(RollNo, CourseNo, Grade)

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create table student: -

```
mysql> create table student
   -> (rollno int(6) primary key,
   -> studentname varchar(15) not null,
   -> class varchar(15),
   -> major varchar(15));
Query OK, 0 rows affected, 1 warning (0.47 sec)
```

To Insert records into table student: -

```
mysql> insert into student(rollno,studentname,class,major)
        -> values(001,'Anu','IBCA','Computers');
```

Similarly Insert 04 Records.

To create course table:

```
mysql> create table course
   -> (courseno int(6),
   -> coursename varchar(15) not null,
   -> professorname varchar(15) not null,
   -> department varchar(20) not null,
   -> foreign key(courseno) references student(rollno));
Query OK, 0 rows affected, 1 warning (1.10 sec)
```

To Insert records into table course: -

```
mysql> insert into course(courseno,coursename,professorname,department)
   -> values(001,'BCA','Pramada Basu','Computer Science');
Query OK, 1 row affected (0.06 sec)
```

Similarly Insert 04 records

To Create Table Report: -

```
mysql> create table report
   -> (rollno int(6) references student(rollno),
   -> courseno int(6) references course(courseno),
   -> grade char(2));
Query OK, 0 rows affected, 2 warnings (0.02 sec)
```

To Insert Records into Table report: -

```
mysql> insert into report(rollno,courseno,grade)
   -> values(001,001,'A');
Query OK, 1 row affected (0.01 sec)
```

Similarly Insert 04 records.

Execute the following Queries: -

a) **Retrieve the names of all students majoring in 'Computers'.**

```
mysql> select studentname from student where major in('Computers');
+-------------+
| studentname |
+-------------+
| Anu         |
+-------------+
1 row in set (0.00 sec)
```

b) Retrieve the names of all students and class, who are doing the course taught by professor 'Pramada Basu'.

mysql> select studentname,class from student, course where student.rollno=course.courseno and course.professorname='Pramada Basu';

```
+-------------+-------+
| studentname | class |
+-------------+-------+
| Anu         | IBCA  |
+-------------+-------+
```

1 row in set (0.00 sec)

c) Retrieve all department names who are offering more than one course.

mysql> select department from course group by department having count(*)>1;
Empty set (0.01 sec)

d) Retrieve the roll number and names of all students who could not get grade 'A' in any of their course.

mysql> select studentname,rollno from student where rollno in(select rollno from report where grade not in('A'));

```
+-------------+--------+
| studentname | rollno |
+-------------+--------+
| Charvi      |      2 |
| Chanfu      |      3 |
| Anu         |      5 |
+-------------+--------+
```

3 rows in set (0.01 sec)

5) Create the following tables by identifying primary and foreign keys, specify the not null property for mandatory keys.

SALES ORDER
COLUMNNAME DATATYPE SIZE CONSTRAINT
Order_No char 6 Primary key First character must be 'O', Order_Date Date, Clientname Varchar 25, Dely_Type Char 1 Part (P) / Full (F), Default 'F', Dely_Date Date Cannot be less than Order Date
SALES_ORDER_DETAILS
Order_No char 6 Part of the Primary key; Foreign key - References Order_No of Sales_Order table, Product_No char 6 Part of the Primary key; Foreign key - References Product_No of Product_Master table, Qty_Ordered int 8, Qty_Supplied int 8, Product_Rate decimal 10, 2
PRODUCT MASTER
Product_No char 6 Primary key First character must be 'P', Description Varchar 20 Not null, Qty_On_Hand int 8 Not Null, Cost_Price decimal 8, 2 Cannot be 0, Sell_Price decimal 8, 2 Cannot be 0

To create database: -

```
mysql>create database shahabas;
mysql>use shahabas;

Database Changed
```

To create table salesorder: -

```
mysql> create table salesorder
   -> (order_no char(6) primary key check(order_no like 'O%'),
   -> order_date date,
   -> clientname varchar(25),
   -> dely_type char(1) default 'F',
   -> dely_date date,
   -> check(dely_type in("P","F")),
   -> constraint dely_date check(dely_date>order_date));
Query OK, 0 rows affected (0.63 sec)
```

To Insert Record into Table salesorder: -

```
mysql> insert into salesorder(order_no,order_date,clientname,dely_type,dely_date)
values('O0001','2021-01-20','Ivan_Bayross','F','2021-12-27');
Query OK, 1 row affected (0.07 sec)
```

Similarly Insert 04 Records.

To create product_master table: -

```
mysql> create table product_master
   -> (product_no char(6) primary key check(product_no like 'P%'),
   -> description varchar(20) not null,
   -> qty_on_hand int(8) not null,
   -> cost_price decimal(8,2),
```

```
    -> sell_price decimal(8,2),
    -> check(cost_price>0),
    -> constraint sell_price check(sell_price>0));
Query OK, 0 rows affected, 1 warning (0.44 sec)
```

To Insert Record into product_master table:-

```
mysql> insert into product_master(product_no,description,qty_on_hand,cost_price,sell_price)
-> values('P0001','Pendrive',11,500,425);
```

Similarly insert 04 records.

To create sales_order_table: -

```
mysql> create table sales_order_details
    -> (order_no char(6),
    -> product_no char(6),
    -> qtyordered int(8),
    -> qtysupplied int(8),
    -> productrate decimal(10,2),
    -> foreign key(order_no) references salesorder(order_no),
    -> foreign key(product_no) references product_master(product_no));
Query OK, 0 rows affected, 2 warnings (0.72 sec)
```

To Insert records into sales_order_table: -

```
mysql> insert into
sales_order_details(order_no,product_no,qtyordered,qtysupplied,productrate)
values('O0001','P0001',24,19,225.60);
Query OK, 1 row affected (0.07 sec)
```

Similarly Insert 04 Records.

Execute the Following Queries: -

a) **Display the order_date in the format 'DD-Month-YY'.**

```
mysql> select date_format(order_date,'%d %M %Y')"order date" from salesorder;
+------------------+
| order date       |
+------------------+
| 20 January 2021  |
| 20 January 2022  |
| 23 February 2024 |
| 20 January 2026  |
| 20 January 2027  |
+------------------+
rows in set (0.00 sec)
```

b) Print the information from sales_order table for orders placed in the month of 'January'.

mysql> select * from salesorder where date_format(order_date,'%M')='January';

```
+----------+------------+--------------+-----------+------------+
| order_no | order_date | clientname   | dely_type | dely_date  |
+----------+------------+--------------+-----------+------------+
| O0001    | 2021-01-20 | Ivan_Bayross | F         | 2021-12-27 |
| O0002    | 2022-01-20 | Andrew_Tate  | F         | 2022-06-27 |
| O0003    | 2026-01-20 | Tony_stark   | F         | 2027-06-27 |
| O0005    | 2027-01-20 | Bruce_Wayne  | F         | 2029-06-27 |
+----------+------------+--------------+-----------+------------+
```

4 rows in set (0.00 sec)

c) Find the product whose selling_price is greater than 2000 and less than or equal to 5000.

mysql> select product_no from product_master where sell_price>2000 and sell_price<=5000;

```
+------------+
| product_no |
+------------+
| P0001      |
+------------+
```

d) Find the product_no and description of non-moving products i.e., products not being sold.

mysql> select product_no,description from product_master where product_no not in(select product_no from sales_order_details);

```
+------------+-------------+
| product_no | description |
+------------+-------------+
| P0004      | Mobile      |
+------------+-------------+
```

1 row in set (0.00 sec)

e) Find the products and their quantities for the orders placed by client 'Ivan Bayross'.

mysql> select a.product_no,a.qtyordered,b.description from sales_order_details a,product_master b,salesorder c where b.product_no=a.product_no and c.order_no=a.order_no and c.clientname='Ivan_bayross';

```
+------------+------------+-------------+
| product_no | qtyordered | description |
+------------+------------+-------------+
| P0001      |         24 | Pendrive    |
+------------+------------+-------------+
```

1 row in set (0.00 sec)