Atal Bihari Vajpayee
Indian Institute of Information Technology
and Management (ABV-IIITM), Gwalior
(An Institute of National Importance, Ministry of Education, Government of India)

MAJOR LAB EXAMINATION-2023 (SET-B)

Course Name: Database Systems Lab
Program & Sem: B.Tech (CSE), 2nd Semester

Date: 19-06-2023 (Mon)
Time: 2:00 - 4:00 PM

Instructions:
(i) Read the all questions carefully and answer accordingly.

Table: **Customer**

Customer Table ID	Customer Name	City	Grade	Salesman ID
3002	Nick	New York	100	5001
3007	Davis	Delhi	200	5001
3005	John	Italy	550	5002
3008	Sania	Delhi	400	5002
3004	Rahul	Delhi	35	5006
3009	Joy	Paris	600	5007
3003	Fabian	San Francisco	500	5007
3011	Graham	Bangalore	700	5006

Table: **Orders**

Order no.	Purchase amount	Order date	Customer ID	Salesman ID
101	1000	2012-8-17	C1	5001
102	1455	2012-9-10	C2	5001
103	2951	2012-7-27	C3	5002
305	300	2012-9-10	C1	5002
017	9000	2012-8-10	C3	5006
206	5000	2012-8-17	C4	5007
212	7500	2012-8-17	C2	5007
208	4017	2012-8-17	C4	5006

Table: **Salesman**

Salesman ID	Name	Commission	City
5001	3002	100	New York
5002	3007	150	Delhi
5003	3005	110	Italy
5004	3008	170	Bombay
5005	3004	520	Delhi
5006	3009	250	Paris
5007	3003	90	San Francisco

P.T.O

Q1. Consider the above tables and answer the following.

(a) From the **Customer table**, write a SQL query to find the Highest grade of the customers in each city. At output display: "city name", "Salesman ID" and "lowest grade". (4 Marks)

highest

(b) From the **orders** table, write a SQL query to find the maximum order (purchase) amount in the range 2000 - 5000 (Begin and end values are included.) by combination of each customer and order date. Return customer id, order date and maximum purchase amount. (4 Marks)

(c) Write a SQL query to locate those salespeople who live in the same city where their customers live and have received a commission of less than 100 from the company. Return Customer Name, customer city, Salesman, salesman city, commission. (4 Marks)

(d) From the **Customer table**, write a SQL query to count the number of customers with grades above the average grade in New York City. Return grade and count. (4 Marks)

(e) From the **Customer table**, write a SQL query to find the details of those salespeople who live in cities other than Delhi and having commission greater than 100. Display salesman ID, name, and city in output. (2 Marks)

(f) From the **Salesman** table, write a SQL query to count the number of salespeople in each city and commission greater than 200. (2 Marks)

Q2. Construct an ER Diagram for a university database where. (15 Marks)

(a) A university has many departments.
(b) Each department has multiple instructors, One among them is the head of the department.
(c) Each department offers multiple courses, each of which is taught by a single instructor.
(d) A student may enroll for many courses.