FACULTY OF COMPUTER SCIENCE

Post Graduate Diploma in Computer Science and Application

In Effect from Academic Year 2016-17 **(Sem-II)**

Subject Code : 1CS4010203	**Subject Title: ADVANCED DATABASE MANAGEMENT SYSTEMS**
Pre-requisite :	**Fundamentals of Database Management System**

Course Objective:

This course is intended to make the students familiar with advance concepts of Database Management Systems (DBMS). It aims to make students understand the role of DBMS in organization and understand the advance database concept, structure and operation using relational data model. This course explains the role of the database administrator (DBA) in an organization.

Teaching Scheme (Hours per week)				**Evaluation Scheme (Marks)**				
				Theory		**Practical**		
Lecture	**Tutorial**	**Practical**	**Credit**	**University Assessment**	**Continuous Assessment**	**University Assessment**	**Continuous Assessment**	**Total**
4	1	2	6	70	30	30	20	150

Subject Contents			
Sr. No	**Topics**	**Total Hours**	**Weight (%)**
1	**Structured Query Language (SQL):** Introduction to ADBMS, SQL and oracle. DBMS Vs ADBMS, Data Types, DDL, DML, DCL, and TCL Component, Select Clause, Order By, and Group By Clause.	**9**	**20**
2	**Data Constraints ,Oracle Functions:** Data Constraints and its Types. Oracle Functions: Aggregate functions, Numeric Functions, Date Functions, String Functions	**9**	**20**
3	**Joins, Set operators, Sub query, Advance SQL:** Joins and its Types, Set operators, Sub query. Advance SQL : Import Export facilities of SQL Database**,** Indexes, Views, Sequences	**9**	**20**
4	**PL/SQL:** Introduction to PL/SQL: Structure of PL/SQL Block, Data Types, Variables, Control Structure, Stored Procedure and Function ,Basic concept of Cursor	**9**	**20**
5	**Transition Management , Security , Distributed Databases:** **Transition Management:** Recovery, concurrency. **Security:** Data encryption. **Distributed Databases**: Introduction, The twelve objectives and Client/Server System.	**9**	**20**

Course outcomes:

At the end of this course, the students would be able:

- To create database, store database and manage the database.
- To implement the database system in organization.
- To design small database project using other GUI programming.
- To implement the concept of security using Grant and Privileges on database
- To understand encryption algorithm.

List of References:

1. Introduction to Database System: C. J. Date (7th edition) Low Price Edition
2. SQL, PL/SQL: Evan Bayross (2nd edition) BPB
3. Database Management System A C Shah & A R Patel, MacMillan Publication.
4. Database system concepts Henry F. Korth (3rd edition) TMH Publications.

: List of Experiments:

Note: The experiment list provided beneath is for reference only. The course teacher may change/formulate it as per his/her methodology and requirement.

Create following Three Tables.

1. Salesman

SNUM	SNAME	CITY	COMMISSION
1001	PINAL	LONDON	12%
1002	JINAL	SURAT	13%
1003	KINJAL	LONDON	11%
1004	PRIYANK	BARODA	15%
1005	AMI	NEW DELHI	10%
1006	ANY	PATAN	10%
1007	VRAJ	BOMBAY	09%

SNUM: A Unique number assign to each salesman.
SNAME: The name of salesman.
CITY: The location of salesman.
COMMISSION: The salesman commission on order.

2. Customer

CNUM	CNAME	CITY	RATING	SNUM
2001	HARSH	LONDON	100	1001
2002	NIRALI	ROME	200	1003
2003	LAX	SURAT	200	1002
2004	PRIT	BOMBAY	300	1002
2005	SAHIL	LONDON	100	1001
2006	PRIYA	SURAT	300	1007
2007	BHOOMI	ROME	100	1004

CNUM: A Unique number assign to each customer.
CNAME: The name of customer.
CITY: The location of customer.
RATING: A level of preference indicator given to this customer.
SNUM: A salesman number assign to this customer.

3. Order1

ONUM	AMOUNT	ODATE	CNUM	SNUM
3001	18.69	03/05/16	2007	1007
3002	767.19	03/05/16	2001	1001
3003	1900.10	03/05/16	2007	1004
3004	5160.45	03/05/16	2003	1002
3005	1098.25	04/05/16	2007	1007

3006	1713.12	04/05/16	2002	1003
3007	75.75	05/05/16	2004	1002
3008	4723.00	05/05/16	2006	1001
3009	1309.95	05/05/16	2004	1002
3010	9898.87	06/05/16	2006	1001

ONUM: A Unique number assign to each Order.
AMOUNT: Amount of order in Rs.
ODATE: The date of order.
CNUM: The number of customer making the order.
SNUM: The number of salesman credited with the sale.
Note: "date must be insert in **dd-mon-yyyy EX:-03/MAY/2016**"

Solve following request with the help of SQL query.

1. Produce the order no, a mount and date of all orders.
2. Give all the information about all the customers with salesman number 1001.
3. Display the information in the sequence of city, sname, snum, and Commission.
4. List of rating followed by the name of each customer in Surat.
5. List of snum of all salesmen with orders in order table without an duplicates.
6. List of all orders for more than Rs. 1000.
7. List out names and cities of all salesmen in London with commission above 10%
8. List all customers excluding those with rating <= 100 or they are located in Rome.
9. List all order for more than Rs. 1000 except the orders of snum,1006 of 03/05/16
10. List all orders taken on May 3rd or 4th or 6th 2016.
11. List all customers whose names begins with a letter 'P'.
12. List all customers whose names begins with letter 'A' to 'B'
13. List all orders with zero or NULL amount.
14. Find out the largest orders of salesman 1002 and 1007.
15. Count all orders of 03-May-16.
16. Calculate the total amount ordered.
17. Calculate the average amount ordered.
18. Count the no. of salesmen currently having orders.
19. Find the largest order taken by each salesman on each date.
20. Find the largest order taken by each salesman on 03/05/16
21. Count the no. of different non NULL cities in the Customer table.
22. Find out each customer's smallest order.
23. Find out the customer in alphabetical order whose name begins with 'B'
24. Count the no. of salesmen registering orders for each day.
25. Display the no. of order for each day in the following format. DD-mon-yy.
26. Assume each salesperson has a 12% commission. Write a query on the order table that will produce the order number, salesman no and amount of commission for that order
27. List all customers in descending order of rating.
28. Calculate the total of orders for each day.
29. Show the name of all customers with their salesman's name.
30. List all customers and salesmen who shared a same city.
31. List all orders with the names of their customer and salesman.
32. List all customers located in cities where salesman JINAL has customers.
33. Produce the name and city of all the customers with the same rating as HARSH.
34. List all customers serviced by salesman with commission above 12%.
35. Calculate the amount of the salesman commission on each order by customer with rating above 100.
36. Find all orders of the salesman who services 'HARSH'

37. Find all orders attributed to salesmen in 'London'.
38. List the commission of all salesmen serving customers in 'London'.
39. Count the no. of customers with the rating above than the average of 'Surat'.
40. List all orders of the customer 'Nirali'.
41. List the name and number of all salesmen who has more than Zero customer.
42. Select the name and number of all salesmen who have customers their cities.
43. find all salesmen who have customers with rating > 300
44. List all salesmen with customers located in their cities.
45. Find all salesmen for whom there are customers that follow them alphabetical order.
46. Find all customers having rating greater than any customer in 'Rome'.
47. List all order that has amount greater than at least one of the orders from 6th May, 2016.
48. Find all orders with amounts smaller than any amount for a customer in 'Rome'.
49. Find all the customers who have greater rating than every customer in 'Rome'.
50. Select all customers whose rating doesn't match with any rating customer of 'Surat'.
51. List all customers whose ratings are equal to or greater than ANY 'JINAL'
52. Find out which salesman produce largest and smallest orders on each date.
53. Insert a row into salesmen table with the values snum is 100 salesman name is Priyank,city is unknown and commission is 14%.
54. Insert a row in to customer table with values London, Bhoomi a 2005 for the columns city, name and number.
55. Create another table London staff having same structure as salesman table.
56. Insert all the rows of salesmen table with city London in the London staff table.
57. Create another table Day totals with two attributes date and total and insert rows into this table from order table.
58. Create a duplicate of the salesmen table with a name Multicust. Now delete all the rows from the salesmen table.
59. Double the commission of all salesmen of London.
60. Set ratings for all customers in London to NULL.
61. Create a table Bonus that contains date wise maximum amount of order for all salesmen.
62. Create a table Multicust containing the salesmen with more than one customer.
63. New Delhi office has closed. Remove all customers assigned to salesmen in New Delhi.
64. Delete all salesmen who have at least one customer with a rating of 100 from salesmen table.
65. Delete the salesmen who produce the lowest order for each day.
66. Write a command to find out the orders by date.
67. Write a command to add the item-name column to the order table.
68. Create a view called Big orders which stores all orders larger than Rs.4000.
69. Create a view Rate count that gives the count of no. of customers at each rating.
70. Create a view that shows all the customers who have the highest ratings.
71. Create a view that shows all the number of salesman in each city.
72. Create a view that shows all the number of salesmen in each city.
73. Create a view that shows all the salesmen with multiple customers.
74. Create a view Show name that shows for each order the order no, amount, salesman name and the customer name.
75. Create a view Same city that shows the no and name and city of the customers along with the city of the salesman serving them.

PL/SQL BLOCK:-

01.Write a PL/SQL Block to Display Student No, Name and Address on the Screen.
02. Write a PL/SQL Block to Perform Arithmetic Operation.
03. Write a PL/SQL Block to Find Maximum Number from Given two Numbers.
04. Write a PL/SQL Block to make Sum Of first 100 natural numbers.

05. Write a PL/SQL Block to Implement The Concept Of Store Procedure.
06. Write a PL/SQL Block to Implement The Concept Of Function.