Paper No: CS3019 Subject: Introduction to Database Management Systems
Program: 5 Years Integrated M.Sc.(IT) Semester: 01

<table>
<tr><td>Practical No: 1</td><td colspan="3">Enrolment No:</td></tr>
<tr><td>Practical Problem</td><td colspan="3">Create following tables:
PRODUCT_MASTER (PRODUCT_NO, P R O D U C T _ NAME, PURCHASE_DATE, PRICE, QUANTITY, DISTRIBUTER _ N A M E)
SALESMAN (SALEMAN_NO, SNAME, ADDRESS1, ADDRESS2, CITY, PINCODE, STATE)
PROJECT (PROJECT_ID, PROJECT_NAME)
Insert five records in each table.
Guidelines for record insertion:<table><tr><td rowspan="3">PRODUCT _MASTER</td><td>PRODUCT_NAME</td><td>Must start with capital letter.</td></tr><tr><td>PURCHASE_DATE</td><td>Should be less than current</td></tr><tr><td>PINCODE</td><td>Must be of six digits only.</td></tr><tr><td rowspan="2">SALESMAN</td><td>SNAME</td><td>Must start with capital letter.</td></tr><tr><td>CITY</td><td>Must be valid city name.</td></tr></table></td></tr>
<tr><td>Objective(s)</td><td colspan="3">To make them understand simple table creation with data insertion and knowledge about basic data types</td></tr>
<tr><td>Pre-requisite</td><td colspan="3">Knowledge about basic data types of DB2, CREATE and INSERT statements</td></tr>
<tr><td>Duration for completion</td><td colspan="3">2 hours</td></tr>
<tr><td>PEO(s) to be achieved</td><td colspan="3">PEO4: To develop the awareness and skills to become professionally Competent leaders in service to industry.</td></tr>
<tr><td>PO(s) to be achieved</td><td colspan="3">PO2: Ability to design and develop system, component or process as well as test and maintain it.</td></tr>
<tr><td>CO(s) to be achieved</td><td colspan="3">Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.</td></tr>
<tr><td>Solution must contain</td><td colspan="3">DDL and DML query statements</td></tr>
<tr><td>Nature of submission</td><td colspan="3">Handwritten</td></tr>
<tr><td>References for solving the problem</td><td colspan="3">Beginning DB2: From Novice to Professional, Allen G. (Page No: 245-255)
http://www.w3schools.com/Sql/sql_create_table.asp</td></tr>
<tr><td>Post Laboratory questions</td><td colspan="3">Post Laboratory questions:
List any two information about table stored in data dictionary after successfully creation of table.
What is the purpose of DDL interpreter?
Write two basic rules to give table name.
Describe a best suitable situation where VARCHAR can be used instead of CHAR.</td></tr>
<tr><td colspan="4">Assessment</td></tr>
<tr><td></td><td>Solution achieves the desired objective(s)</td><td>Viva</td><td></td></tr>
<tr><td>Out of Marks</td><td>10</td><td>5</td><td></td></tr>
<tr><td>Secured by the student</td><td></td><td></td><td></td></tr>
<tr><td>Signature</td><td></td><td></td><td></td></tr>
<tr><td>Date</td><td></td><td></td><td></td></tr>
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<table>
<tr><td>Practical No: 2</td><td colspan="2">Enrolment No:</td><td>Group : A</td></tr>
<tr><td>Practical Problem</td><td colspan="3">Create following tables with necessary constraints:
• TBL_STUDENT (<u>STID</u>, DEPTID, STNAME, DATE_OF_BIRTH, CITY, EMAIL_ID, CONTACT_NUMBER, GENDER)
• TBL_DEPARTMENT (<u>DEPTID</u>, DEPT_NAME)
Apply following constraints at the time of table creation.
(1) Apply primary key to EMPID and DEPTID.
(2) DEPTNAME attribute of DEPARTMENT table should have value either “MCA” or “MSc(IT)” or “BCA” or “MBA”.
(3) Apply foreign key to DEPTID attribute of TBL_DEPARTMENT in TBL_STUDENT table.
(4) SALARY attribute value of EMPLOYEE table should be non negative value.
(5) GENDER attribute of STUDENT table should have value either “M” or “F”.

Insert five records in each table.
<table>
<tr><td>TBL_DEPARTMENT</td><td>DEPTNO</td><td>Enter 101, 102, 103, 104, 105 for department number</td></tr>
<tr><td rowspan="4">TBL_STUDENT</td><td>STNAME</td><td>Must start with capital letter.</td></tr>
<tr><td>CITY</td><td>Must be valid city name.</td></tr>
<tr><td>CONTACT_NUMBER</td><td>Must be non negative value.</td></tr>
<tr><td>DATE_OF_BIRTH</td><td>Should be 18 years less than current date.</td></tr>
</table>
</td></tr>
<tr><td>Objective(s)</td><td colspan="3">To make them understand table creation with constraints.</td></tr>
<tr><td>Pre-requisite</td><td colspan="3">Knowledge about various constraints</td></tr>
<tr><td>Duration for completion</td><td colspan="3">2 hours</td></tr>
<tr><td>PEO(s) to be achieved</td><td colspan="3">PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.</td></tr>
<tr><td>PO(s) to be achieved</td><td colspan="3">PO2: Ability to design and develop system, component or process as well as test and maintain it.</td></tr>
<tr><td>CO(s) to be achieved</td><td colspan="3">Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.</td></tr>
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<tr><td>References for solving the problem</td><td colspan="3">Beginning DB2: From Novice to Professional, Allen G. (Page No 250-255)
http://www.w3schools.com/Sql/sql_constraints.asp</td></tr>
<tr><td>Post Laboratory questions</td><td colspan="3">Post Laboratory questions:
1. What is NOT NULL constraint? When will you use it?
2. What is composite primary key? State its syntax.
3. What is primary key constraint?
4. Consider an attribute with only foreign key constraint. Can that attribute hold null entries in it? Justify.</td></tr>
<tr><td colspan="4">Assessment</td></tr>
<tr><td></td><td>Solution achieves the desired objective(s)</td><td>Viva</td><td></td></tr>
</table>

	Out of Marks	**10**	**5**	
	Secured by the student			
	Signature			
	Date			

Practical No: 3	**Enrolment No:**	**Group : A**
Practical Problem	Create following tables with necessary constraints: • **PRODUCT_MST**(**PROD_ID**, PROD_NAME, PROD_DESC, PROD_RATE) • **SALES_ORDER_DTL**(**SALES_ID**, SALES_DATE, CUSTOMER_NAME, ORDER_CITY, **PROD_ID**, QUANTITY) Solve following queries: (1) Display PROD_ID, PROD_NAME and PROD_RATE for all the products. (2) Display SALES_ID, SALES_DATE, and QUANTITY for all the sales. (3) Display all product details having SALES_ID greater than 2. (4) Update ORDER_CITY to Bardoli in SALES_ORDER_DTL table. (5) Update ORDER_CITY to Surat in SALES_ORDER_DTL having SALES_ID greater than 3. (6) Update all the orders by decreasing 5 for all QUANTITY. (7) Update all the products by increasing 10% PROD_RATE. (8) Delete all the sales order details which are from Surat.	
Objective(s)	To make them understand simple select statements, update and delete commands.	
Pre-requisite	Knowledge about SELECT, UPDATE and DELETE commands with WHERE clause.	
Duration for completion	2 hours	
PEO(s) to be achieved	PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.	
PO(s) to be achieved	PO2: Ability to design and develop system, component or process as well as test and maintain it.	
CO(s) to be achieved	Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.	
Solution must contain	DDL and DML query statements	
Nature of submission	Handwritten	
References for solving the problem	Beginning DB2: From Novice to Professional, Allen G**. (**Page No 255-283) http://www.w3schools.com/Sql/sql_where.asp	
Post Laboratory questions	*Post Laboratory questions:* 1. *How to change the column headings while fetching data from the table for display purpose?* 2. *Give the output of the following query:* *UPDATE* **PRODUCT_MST** SET PROD_ID = 10 WHERE 1=2; *How 1=2 is evaluated in above query?* 3. *Without adding a new attribute to the table, write a query to display PROD_ID, PROD_NAME, PROD_RATE and NewRate for all the products. (NewRate is three times more than PROD_RATE)* 4. *How to update multiple attributes in single update statement in*	

	DB2? Give example of it.		
Assessment			
	Solution achieves the desired objective(s)	**Viva**	
Out of Marks	**10**	**5**	
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Practical No: 4	Enrolment No:	Group : A
Practical Problem	Use tables PRODUCT_MST and SALES_ORDER_DTL created in practical no. 3 and solve following queries: (1) Display product details with PROD_RATE greater than 50. (2) Display sales order detail with ORDER_CITY is "Bardoli". (3) Display sales order detail with PROD_RATE is in between 5 to 50. (4) Display product details with their PROD_NAME starts with 'P'. (5) Display product details with their PROD_NAME ends with 'S'. (6) Display sales order detail with ORDER_CITY is "Bardoli" and QUANTITY is greater than 25. (7) Display product details with PROD_NAME starts with 'C' or PROD_RATE is greater than 35. (8) Display sales order details which are ordered before "15-August-2014". (9) Display sales order details which are placed in July 2014. (10) Display product detail with length of the PROD_NAME is 5 characters.	
Objective(s)	To make them understand conditional select statements.	
Pre-requisite	Knowledge about SELECT command with WHERE clause, various operators and functions.	
Duration for completion	2 hours	
PEO(s) to be achieved	PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.	
PO(s) to be achieved	PO2: Ability to design and develop system, component or process as well as test and maintain it.	
CO(s) to be achieved	Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.	
Solution must contain	DML query statements	
Nature of submission	Handwritten	
References for solving the problem	Beginning DB2: From Novice to Professional, Allen G. page no 255-276 http://www.w3schools.com/Sql/sql_wildcards.asp	
Post Laboratory questions	*Post Laboratory questions:* 1. *In the WHERE clause what is the use of BETWEEN and IN?* 2. *Solve query no – 9 by using another alternative.* 3. *How do you eliminate duplicate values in output of SELECT statement?* 4. *Describe a situation where it is best suitable to use LIKE operator.*	

Assessment

	Solution achieves the desired objective(s)	Viva	
Out of Marks	**10**	**5**	
Secured by the student			
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Date			

Practical No: 5	**Enrolment No:**	**Group : A**
Practical Problem	Create the following table with proper constraints: Author_id (Author_Id, Author_Name, City, Contact_Number) Book(Book_Id, Book_title, Book_Quantity, Book_Price, Author_Id) Make Author_Id of Author & Book_Id of Book table as Primary key. Apply necessary constraints while creating tables. 1. Author_Id as foreign key in Book table. 2. Book_Quantity cannot store null value. 3. Book_Quantity must be greater than 1. 4. Insert 10 records in each table. **Perform the following queries:** 1. Display author details who are from 'Surat' as well as 'Mumbai'. 2. Display the Book_title for a book title starting with 'A'. 3. List the book name and available quantity whose price is more than 350 but less than 1500. 4. Display book details whose price is 450 and the Book_quantity is 20	
Objective(s)	To make them understand concepts of string operations	
Pre-requisite	Knowledge about select from and where clauses	
Duration for completion	2 hours	
PEO(s) to be achieved	PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.	
PO(s) to be achieved	PO2: Ability to design and develop system, component or process as well as test and maintain it.	
CO(s) to be achieved	Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.	
Solution must contain	DML query statements	
Nature of submission	Handwritten	
References for solving the problem	Beginning DB2: From Novice to Professional, Allen G. page no 255-276 http://www.w3schools.com/Sql/sql_wildcards.asp	
Post Laboratory questions	*Post Laboratory questions:* 1. What are the rules for giving a table name while creating a table? 2. What is the difference between DELETE and DROP commands? 3. What do you mean by constraint? 4. What is the difference between CHAR and VARCHAR data type?	

Assessment

	Solution achieves the desired objective(s)	**Viva**
Out of Marks	**10**	**5**
Secured by the student		
Signature		
Date		

Practical No: 6	Enrolment No:	Group : A
Practical Problem	Create the following table with proper constraints: TrainMaster (Train_ID, Trainname, Source, Destination, Scheduled_days, Sdate, Enddate) Passenger (Passenger_ID ,Train_ID,Travel_date , PName, City) Make Train_ID of TrainMaster & Passenger_ID of Passenger table as Primary key. 1. Apply necessary constraints while creating tables. 2. Train_Id as foreign key in Passenger table. 3. Scheduled_days cannot store null value. 4. Enddate must be greater than Sdate. **Perform the following queries:** 1. Display Passenger details who are from 'Mumbai'. 2. Display the Train details for a Trainname ending with 'ni'. 3. Display Train details for the trains whose scheduled days are more than 3 and source station is 'Udaipur' 4. Display passenger details who are from 'Mumbai' and are travelling on'2015-10-02'	
Objective(s)	To make them understand concepts of string operations	
Pre-requisite	Knowledge about select from and where clauses	
Duration for completion	2 hours	
PEO(s) to be achieved	PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.	
PO(s) to be achieved	PO2: Ability to design and develop system, component or process as well as test and maintain it.	
CO(s) to be achieved	Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.	
Solution must contain	DML query statements	
Nature of submission	Handwritten	
References for solving the problem	Beginning DB2: From Novice to Professional, Allen G. page no 255-276 http://www.w3schools.com/Sql/sql_wildcards.asp	
Post Laboratory questions	*Post Laboratory questions:* 1. How HAVING and WHERE clauses differ from each other? 2. How to sort the data in SQL? 3. List and explain data types available in MySQL. 4. What are the four objectives of the selection of a data type?	

Assessment

	Solution achieves the desired objective(s)	Viva
Out of Marks	**10**	**5**
Secured by the student		
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Date		

Practical No: 7	Enrolment No:	Group : A
Practical Problem	Create following tables: Suppliers(supplier_id, supplier_name, supplier_address,supplier_contactname) Product(product_code, product_name,product_description,supplier_id) 1. Perform cross join on both the tables. 2. Extract the product name and supplier name for each row in our product table (use inner join) 3. Extract the product name and supplier name for each row in our product table (use left join) 4. Extract the product name and supplier name for each row in our product table (use right join) 5. List only the products supplied by Microsoft.	
Objective(s)	To make them understand concepts of joins	
Pre-requisite	Knowledge about select from and where clauses	
Duration for completion	2 hours	
PEO(s) to be achieved	PEO4: To develop the awareness and skills to become professionally competent leaders in service to industry.	
PO(s) to be achieved	PO2: Ability to design and develop system, component or process as well as test and maintain it.	
CO(s) to be achieved	Use data definition and manipulation statements over one or more tables using SQL to store and retrieve data.	
Solution must contain	DML query statements	
Nature of submission	Handwritten	
References for solving the problem	http://www.techotopia.com/index.php/Joining_Tables_in_MySQL	
Post Laboratory questions	*Post Laboratory questions:* 1. What is a join? 2. *What is use of LIKE operator?* 3. *What is "CROSS JOIN"? or What is Cartesian product?* 4. *How HAVING and WHERE clauses differ from each other?*	

Assessment

	Solution achieves the desired objective(s)	Viva	
Out of Marks	**10**	**5**	
Secured by the student			
Signature			
Date			