

U.G. 4th Semester Examination - 2020**COMPUTER SCIENCE****[HONOURS]****Course Code : CMSH/CC-P-410****(Database Management Systems Lab.)****[PRACTICAL]**

Full Marks : 75

Time : 6 Hours

Marks Allotment :

Experiment : 60 marks

Viva voce : 10 marks

Lab Notebook : 5 marks.

Answer **one** question carrying 60 marks each. $1 \times 60 = 60$

1. Consider the following schema for a Library Database:

BOOK (Book_id, Title, Publisher_Name, Pub_Year)

BOOK_AUTHORS (Book_id, Author_Name)

PUBLISHER (Name, Address, Phone)

BOOK_COPIES (Book_id, Branch_id, No-of_Copies)

BOOK_LENDING (Book_id, Branch_id, Card_No, Date_Out, Due_Date)

LIBRARY_BRANCH (Branch_id, Branch_Name, Address)

Write SQL queries to

- a) Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch, etc.
- b) Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2020 to Jun 2020
- c) Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
- d) Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.
- e) Create a view of all books and its number of copies that are currently available in the Library.

2. Consider the following schema for Order Database:

SALESMAN (Salesman_id, Name, City, Commission)

CUSTOMER (Customer_id, Cust_Name, City, Grade, Salesman_id)

ORDERS (Ord_No, Purchase_Amt, Ord_Date, Customer_id, Salesman_id)

Write SQL queries to

- a) Count the customers with grades above Bangalore's average.
- b) Find the name and numbers of all salesmen who had more than one customer.
- c) List all salesmen and indicate those who have and don't have customers in their cities (Use UNION operation.)
- d) Create a view that finds the salesman who has the customer with the highest order of a day.
- e) Demonstrate the DELETE operation by removing salesman with id 1000. All his orders must also be deleted.

3. Consider Dept. table

DEPTNO	DNAME	LOC
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Write SQL query to perform the following:

- a) Rename the table Dept. as department
- b) Add a new column PINCODE with not null constraints to the existing table DEPT
- c) All constraints and views that reference the column are dropped automatically, along with the column.

- d) Rename the column DNAME to DEPT_NAME in Dept. table
- e) Change the data type of column LOC as CHAR with size10

4. Consider Employee table

EMPNO	EMP_NAME	DEPT	SALARY	DOJ	BRANCH
E101	AMIT	Production	45000	12-Mar-00	Bangalore
E102	SUMIT	HR	70000	03-Jul-02	Bangalore
E103	SUNITA	Management	120000	11-Jan-01	Mysore
E104	SOURABH	IT	67000	01-Aug-01	Mysore
E105	SUMI	Civil	145000	20-Sep-03	Mumbai

Write SQL query to perform the following:

- a) Display all the fields of employee table
- b) Retrieve employee number and their salary
- c) Retrieve total salary of employee group by employee name and count similar names
- d) Retrieve total salary of employee which is greater than >120000
- e) Display name of employee in descending order
- f) Display details of employee whose name is AMIT and salary greater than 50000

5. Create the following tables with the fields given below :

TEACHER (T_ID, Department, Year of Exp, Name)

SUBJECT PAPER (Sub_Paper_ID, T_ID, Title_of Paper, Programme, Semester)

Select appropriate primary keys. Input at least 5 meaningful records in the tables. Select appropriate data types for all the fields.

Write SQL query to perform the following:

- a) Display Name and Year-Of-Exp of all the teachers of "Computer Science" department.
- b) Display name of teacher and department of all the teachers who have more than 5 years of experience.
- c) List the file of Subject Paper which are handled by T_ID = 1010.
- d) List the name of Programme and Semester of paper titled "C Programming".
- e) List name of all the teachers of "Physics" department.

6. Create the following database defined below :

SUPPLIER (Supplier #, Company_Name, City)

PARTS (Part #, Weight)

SUPPLY_PARTS (Supplier #, Part #)

PROJECTS (Project #, Part #, Quantity)

ORDERS (Part #, Supplier #, Date_of_Delivery)

Select appropriate data types for each of the fields. Input meaningful data of at least 10 record.

Write SQL query to perform the following:

- a) Find all the parts supplied by supplier "123".
- b) Find the cities where supplier "324" is located.
- c) Find another supplier who supplies at least one part supplied by supplier "431".
- d) Find all the projects where part "P7" is used.
- e) Find all the suppliers who supplies part "P5".

7. Create the following table ROUTE_HEADER with the following fields :

(ROUTE_ID, ROUTE_NO, CATEGORY_CODE, ORIGIN, DESTINATION, FARE, DISTANCE, SEATING_CAPACITY)

Select appropriate data types for each of the fields. Identify ROUTE_ID as primary key. Input meaningful data of at least 10 records.

Write SQL query to perform the following:

- a) To display all the records, sorted in ascending order with respect to distance.
- b) To display the ROUTE_ID and ROUTE_NO whose FARE > 400.
- c) To display the SEATING_CAPACITY for any particular ROUTE_ID.
- d) Display the average total fare.
- e) Display all the types of CATEGORY_CODES.

8. Create the following database defined below :

EMPLOYEE (ENo, EName, Birth_Date, Address, DNo)

DEPARTMENT (DNo, DName, DManager)

DEPT_LOCATION (DNo, DLocation, Country)

WORKS_ON (ENo, PNo, Hours)

PROJECT (PName, PNo, PLocation, DNo)

Select appropriate data types for each of the fields.
Input meaningful data of at least 10 records.

Write SQL query to perform the following:

- a) To find the EName and ENo of all the employees who work for PNo = 111.

- b) To display the no. of hours allocated for ENo = 001.
- c) To display all the projects whose PLocation is "Delhi".
- d) To display all the DNos and DLocations.
- e) To display all the ENos and ENames of the company.

9. Create a table named Book with following fields :

(ISBN, TITLE, AUTHOR (s), PUBLISHER, NO. OF AUTHORS, YEAR, VOLUME, PRICE, NO. OF PAGES)

Select appropriate data types for each of the field.
Identify ISBN as PRIMARY KEY.

Enter at least 10 records for the above table given in Q1 and answer the following 20 queries using SQL :

- a) To display all the books published in the year 2011.
- b) Select all the books of Volume - II
- c) Display all the books published in the year 2010 and whose price is greater than or equal to Rs.500/-
- d) Display the ISBN of a selected book, if the title is given by the user.

- e) Display all the books which were written by 2 or more authors.

10. Create a table named CONTACT with following fields:

(SNAME, ENROLNO, SEMESTER, BRANCH-OF-ENGINEERING, ADDRESS 1, ADDRESS 2, CITY, STATE, MOBILE, EMAIL ADDRESS, PIN-CODE)

Select appropriate data types for each of the field. Identify ENROLNO as PRIMARY KEY.

Enter at least 10 records for the above table given and answer the following queries using SQL :

- a) Display all the records which doesn't have the mobile nos.
- b) Sort all the records as per SNAME chronologically.
- c) Display all the records who are in 3rd semester of computer science branch.
- d) Display all the records whose CITY is given by the user.
- e) Display SNAME and EMAIL ADDRESS of all the records whose SNAME starts with "A".

11. A library system consists of number of books on different subjects. Each book has a identification number, author name, publisher name. User of library can borrow the book and return within a due date (issue date+15 days). Fine is imposed for overdue books @10/- per week. Construct the necessary database and write SQL commands to do the following:

- a) List all books of a particular author.
- b) List all books of a particular publisher.
- c) Calculate the fine if any after return of a particular book.

12. Consider a Library Database Management System with following schema:

BOOK(Acc_No, Inex_No, Author, Publisher, Price)

STAFF(Card_No, Staff_id, Name, Address)

ISSUE (Card_No, Acc_No, Date of issue, Date of return)

Create the above tables and input at least 20 data.

Write the following SQL queries:

- a) Find the names of staff who have not borrowed any book of a particular publisher.

- b) Find the names of staff who have borrowed more than three books.
- c) Find the names of books which have never been issued.

13. Consider the following Database Management System:

Doctor (dno, dname,address,dcity)

Hospital (hno,hname,street,hcity)

Dochosp (dno,hno,date)

Write the following SQL queries:

- a) Find hospital names to which 'Dr. Mehata' has visited.
- b) Find out all the doctors who have visited hospitals in the same city.
- c) List all the doctors who visited 'Krishna' on '1-1-19'.
- d) List Name of hospital to which 'Dr. Aman' has visited on '5-3-2019'.

14. Consider Database Management System.:

Supplier (Supno, sname, supaddress)

Item (Itemno, Iname, stock)

Supp-Item (Supno, Itemno, rate)

Write relational algebraic expression for the following:

- a) List all suppliers from 'Varanasi' city who supplies PISTON.
- b) Display all suppliers supply PISTON RINGS
- c) Change supplier names to upper case
- d) List all suppliers supplying DOOR Lock from 'Jaipur' city.
