

2018

COMPUTER SCIENCE
[HONOURS]
Paper : X
[PRACTICAL]

Full Marks : 80

Time : 6 Hours

Answer any one question from **Group A** and one question from **Group B**, to be selected on lottery basis.

Mark Allotment:

Sessional - 10 marks

Viva voce - 20 marks

Experiment - 50 marks

Each question of Group A is of 25 marks and Group B of 25 marks. Write your own code with proper indentation and comments as necessary.

GROUP-A

(Relational Database Management System)

Answer any one questions to be selected on Lottery basis.

1. Create a table BOOK(title, ISBN, author, Year-of-pub, publisher, price):
 - i) Enter 20 records in it.
 - ii) Write SQL query to list the title and ISBN of all book published in 2014.
 - iii) Write SQL query to list title and price of all the books published by “XYZ” from 2012 to 2014.

[Turn over]

2. Write a PL/SQL code block to find Simple Interest and Compound Interest.

3. Write a PL/SQL code to retrieve the employee name, join_date, and designation from employee database of an employee whose ID is input by the user.

4. Write a PL/SQL code block to find factorial of a number.

5. Write a PL/SQL query that accepts regist_no of a student. If the student have more than 70% attendance and have secured pass marks in class test for all subjects then he/she can be is eligible for enrolling for Internship. Test the query in a table of atleast 10 records.

6. Write a trigger to avoid students from fill up if attendance is less than 75%. Test it in suitable student database.

7. Create a table named DVD with the following fields:
(DVD_TITLE, DVD_ID, CATEGORY (ACTION,
THRILLER, DRAMA, COMEDY, FICTION) PRICE,
DATE_OF_PURCHASE, NO. OF COPIES)

Select appropriate data types for each of the fields'. Identify DVD_ID as primary key. Input meaningful data of atleast 10 records. Answer the following queries using SQL:

- a) Display all the DVD titles which comes under ACTION.
- b) Display all the DVD_ID's whose price is less than Rs.110/-.
- c) Display all the DVD titles, DVD_ID's which were bought on 14th Feb, 2018.

8. Consider the schema EMP(empno, ename, edesignation, date_of_rec, salary, commission, dept_id)

DEPT(dept_id, dname)

i) Write a SQL query to create tables with primary keys and secondary keys.

ii) Write a PL/SQL to display the empno, salary, of all employees.

9. Create a simple Trigger that does not allow Insert Update and Delete Operations on the Table.

10. Consider a schema TOUR_operator(tour_id, tour details, min no of traveler, rate, off season discount, tour start date, tour end date) and TOURIST (Tourist_id, name, age, sex, address, discount(Y.N)).

i) Create the tables using SQL commands.

ii) Write SQL query to display details all tours during off season.

iii) Write a SQL query to list all the tours where min. number of travelers have exceeded.

11. Consider the following schemas for a college:

College-info

And Faculty-info

College-info consists of fields: college-code, college-name, address.

Faculty-info consists of fields: college-code, faculty-code, faculty-name, qualification, experience-in-no-of-years, address.

The field college-code is foreign key.

- a) Create the table and enter data.
- b) Generate queries to do the following:
 - i) List all those faculty members whose experience is greater than or equal to 10 years and have M. Tech degree.
 - ii) List all those faculty members, who have at least 10 years of experience but do not have M. Tech degree.

12. Write a simple PL/SQL program to print the fibonacci series using FOR loop.

13. Write a PL/SQL query that will accept the product ID of a product. If the quantity of the product is less than "15" and unit price is less than Rs.15,000, then order is place for the product for 20 more quantities.

14. Consider the following schema student(roll-no, name, date-of-birth, course-id)Course (Course-id, name, fee, duration)

- a) Create a form using visual basic to accept the data from the user with appropriate validation checks.
- b) Generate queries to do the following:
 - i) List all those students who are greater than 18 years of age and have opted for MCA course.
 - ii) List all those courses whose fee is greater than that of MCA course.

15. Consider the following schema for banking system:

Branch(branch_id, branch_name, branch_city, assets), customer(cust_id, cust_name, cust_street, cust_city, account_id), account(account_id, branch_id, balance), deposit(deposit_id, custm_id, deposit_amt):

- i) Write SQL query to create tables.
- ii) Write a SQL query to list the details of the accounts which have seen deposits of more than Rs.15,000 between a duration. The details should include branch and account details also.

16. Write a simple PL/SQL program to calculate the total wages paid to employee in department 20 and determine how many of the employees have salaries higher than \$2000 & how many have commission larger than their salaries.

17. Consider the following schema for banking system:

Branch(branch_IFSC, branch_name, branch_city, assets), loan(loan_id, branch_id, amount)
borrower(cust_name, loan_id)

- i) Write SQL query for creation of tables with suitable primary key.
 - ii) Write SQL query to insert records in the tables.
 - iii) Write SQL query to list all borrowers that have small borrowings.
18. Create table purchase with the following attributes:
(order_id, product_id, unit_price, qty)
- i) Insert sufficient records.
 - ii) Write SQL query to display the order_id with product details of the products having unit price less than Rs.100.
 - iii) Write SQL query to increase the unit price of particular product.

19. Write PL/SQL code block to find average and sum of numbers between 100 and 500.

20. Write a PL/SQL query to find the names of all students who will be eligible for placements, if they have no backlogs, no year gap and above 70% marks in all examination till date.
21. Consider the following schema Sales(Order ID, Order Date, Order Price, Order Quantity, Customer Name), products (Product_id, Order_id, Manufacture_Date, Raw_Material, Vender_id) and Vender_info(Vender_id, Vender_name)
- i) Create the tables and insert sufficient records.
 - ii) Write a SQL query to list the products of a particular vendor.
 - iii) Write a SQL query to list the orders places in a particular month.

22. Write a PI/SQL query to find overall percentage of n students. Test the PI/SQL in a student database.

23. Consider the following schema for banking system:

Branch(branch_id, branch_name, branch_city, assets), customer(cust_name, cust_street, cust_city, account_id), account(account_id, branch_id, balance):

- i) Write SQL query to create tables with proper keys.
- ii) Write SQL query to insert records.
- iii) Write SQL query to list the branch details and balance of the account "A-32".
- iv) Write SQL query to list all account of having balance more than Rs.5000.

24. Write PL/SQL program to find first n Fibonacci numbers.

25. Write a PL/SQL query that will accept the product_id of a product. If the quantity of the product is less than "15" and unit price is less than Rs.15,000, then order is place for the product for 20 more quantities.

26. Consider the schema DEPT(dept_id, nameofdept, yearof_est, HOD_name, empl_id)
- Write a SQL query for entry of at least 10 records.
 - Write a SQL query to list the details of the departments which were established before 2011)
 - Write a SQL query list the details of the dept with dept_id = 111).

27. Create tables for the following schema:

- Branch-schema = (branch-name, assets, branch-city)
- Loan-schema = (branch-name, loan-number, amount)
- Borrower-schema = (customer-ID, loan-number)
 - Write SQL query to list all the borrowers in a bank
 - Write SQL query to list all borrowers that have small borrowings.

28. Consider the following schema for banking system:

Branch(branch_id, branch_name, branch_city, assets), customer(cust_id, cust_name, cust_street, cust_city, account_id); account (account_id, branch_id, balance), deposit (deposit_id, custm_id, deposit_amt):

- i) Write SQL query to create tables.
- ii) Write a SQL query to list the details of the accounts which have seen deposits of more than Rs.15,000 between a duration. The details should include branch and account details also.

29. Create table purchase with the following attributes:

(order_id, product_id, unit_price, qty)

- i) Insert sufficient records.
- ii) Write SQL query to display the order_id with product details of the products having unit price less than Rs.100.
- iii) Write SQL query to increase the unit price of particular product.

30. Write PL/SQL code block to find average and sum of numbers between 100 and 500.
31. Create a table BOOK(title, ISBN, author, Year-of-pub, publisher, price):
- Enter 20 records in it.
 - Write SQL query to list the title and ISBN of all book published in 2014.
 - Write SQL query to list title and price of all the books published by "XYZ" from 2012 to 2014.
32. Write a PL/SQL query to find the names of all students who will be eligible for placements, if they have no backlogs, no year gap and above 70% marks in all examination till date.

33. Consider the following schema Sales(OrderID, OrderDate, OrderPrice, OrderQuantity, CustomerName), products (Product_id, Order_id, Manufacture_Date, Raw_Material, Vender_id) and Vender_info(Vender_id, Vender_name)

- i) Create the tables and insert sufficient records.
- ii) Write a SQL query to list the products of a particular vendor.
- iii) Write a SQL query to list the orders places in a particular month.

34. Write a PL/SQL query to find overall percentage of n students. Test the PL/SQL in a student database.

GROUP - B

(Unix shell programming)

Answer any one questions to be selected on Lottery basis.

1. Write a shell script to reverse a given positive integer.

2. Write a shell script to sort the given integer numbers in ascending order (using array).

3. Write a shell script to display the following pattern:

```
@  
@ @ @  
@ @ @ @ @  
@ @ @  
@
```

4. Write a shell script to find factorial of a given number.

5. Write a shell script program to list the attributes of files in a directory.
6. Write a shell script to display the path variable of your login.
7. Write a Shell program to check the given integer is Armstrong number or not.
8. Write a Shell Script to change read, write, and execute permissions of a file.
9. Write a shell script to show use of CASE. The script will accept a name of vehicle ("sierra", "alto"), check if the vehicle is listed and display the rent for the vehicle ("maruti van rent=34/km"). If the vehicle is not listed, then display "unknown vehicle".

10. Write a shell script to list the attributes of processes running in the system.
11. Write a shell script to delete the lines containing a word for e.g. <Dd> if it appears between the 5th and 7th position?
12. Write a shell script to count the numbers of files and directory under a working directory.
13. Write a shell script that uses function to add two numbers.
14. Write a shell script to add, subtract two arrays.
15. Write a shell script to get the current date, time, username and current working directory.

16. Write a shell script to display menus

- i) Insert records
- ii) Display records.

Create a corresponding file that will store the records for a movie database. Choose appropriate attributes.

17. Write a shell script to display the following pattern:

*
* * *
* * * *
*

18. Write a shell script to compare two files and list the dissimilarities.

19. Write a shell script to accept two file names from command line argument. If the files are present then display the contents of the file, or else display "the file does not exist".
20. Write a shell script to insert records in a file LIBRARY. The records are ISBN_no_book, author, publisher, year of publishing. List the records entered.
21. Write a Shell program to check and display leap years between a range of years.
22. Write a shell script to swap two numbers using function.
23. Write a shell script that accepts two file names. If the files exist then concatenate the files in another file.

24. Write a shell script to find average of given integer numbers using command line arguments.

25. Write a shell script to display the following pattern:

+

+ +

+ + +

+ + + +

26. Write a shell script to find factorial of a given number.

27. Write a shell script program to list the attributes of files in a directory.

28. Write a shell script to display the path variable of your login.
29. Write a shell script program to check and list attributes of processes.
30. Write a shell script to swap two numbers without using temporary variables.
31. Write a shell script to change read, write, and execute permissions of a file.
32. Write a shell script to add 100 numbers using loop.
33. Write a shell script to list the attributes of processes running in the system.

34. Write a shell script to check if the year inputted is leap year or not. It should also display the next leap year.
35. Write a shell script to count the numbers of files and directory under a working directory.
36. Write a shell script that uses function to add two numbers.
37. Write a shell script to add, subtract two arrays.
38. Write a shell script that allows entry of directory name and counts the number of files and directory in that directory.

39. Write a shell script to display menus 1) Insert records 2) Display records. Create a corresponding file that will store the records for a movie database. Choose appropriate attributes.
40. Write a shell script to display the following pattern:

*
* *
* * *
* * *

41. Write a shell script to compare two files and list the dissimilarities.
42. Write a shell script to accept two file names from command line argument. If the files are present then display the contents of the file, or else display "the file does not exist".

43. Write a shell script to insert records in a file LIBRARY. The records are ISBN_no_book, author, publisher, year of publishing. List the records entered.
44. Write a shell script to show operation of nested for loop.
45. Write a shell script to show use of CASE. The script will accept a name of vehicle ("maruti van", "alto"), check if the vehicle is listed and display the rent for the vehicle (" maruti van rent=20/km"). If the vehicle is not listed, then display "unknown vehicle"
46. Write a shell script to display the following pattern:
- | | | | | |
|---|---|---|---|---|
| | | 1 | | |
| | 2 | 2 | 2 | |
| | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 |

47. Write a shell script to swap two numbers using function.

48. Write a shell script that accepts two file names. If the files exist then concatenate the files in another file.

49. Write shell script to show use of command line argument.