

General Instruction :

1. Each program should be started from new page.
 2. Be careful for indentation and do proper documentations
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SECTION – A (PYTHON)

- Q1. WAP a program to input marks of 5 subjects, calculate and display total marks and average marks of a student.
- Q2. WAP to input total units which was consumed by a customer , calculate and display total charged to be paid by the customer .Electric Bill charges will calculate as per following condition.

No. of units	Rate(in Rs)
First 100 Units	1 Rs per unit.
Next200 Units	2 Rs per unit.
Above300 Units	4 Rs per unit.

- Q3. Write a menu driven program to calculate:
Area of circle[$A=\pi r^2$]
Area of squire [$A=a*a$]
Area of rectangle[$A=l*b$]
- Q4. Write a program to check whether the entered number if prime or not.
- Q5. WAP to input a number, calculate and display sum of each digit of that given number. For example: number is 456, Sum is $4+5+6= 15$
- Q6. WAP to calculate and display sum of the following series:
$$X+X^2/!2 +X^3/!3+.....n \text{ terms.}$$
- Q7. Write a program in python ,count and display the number of vowels, consonants , uppercase, lowercase characters in string.
- Q7. Write a UDF in python, it will take three arguments list(sequence of elements), its size and finding element . Function search and return 1 if element is present in the given list otherwise return -1 . Using Binary search.
- Q9. Write a program in python , to input a string check and display given string is a palindrome or not.
- Q10. Write a program in python, to create a number list. Search and display largest and smallest number present in a list . Without using built-in function.
- Q11. Write a program in python, to create a number list. Calculate and display sum of those elements whose last digit is 5.
- Q12. Write a program in python, to create two number lists a and b . Swap and display all elements of both lists.

- Q13. Write a UDF in python, it will take two arguments list(sequence of elements) and its size . Replace and display first half elements with second half elements of a list.
- For example: list elements are : 1 2 3 4 5
- Output is : 4 5 3 1 2
- Q14. Write a UDF in python, it will take two arguments list(sequence of elements) and its size. Function arrange and display elements in ascending order. Using selection sort.
- Q15. Write a function in PYTHON that counts the number of “Me” or “My” words present in a text file “DIARY.TXT”. If the “DIARY.TXT” contents are as follows:
- My first book was Me and My
Family. It gave me chance to be
Known to the world.**
- The output of the function should be:
- Count of Me/My in file: 4**
- Q16. Write a function in PYTHON to read the contents of a text file “Places.Txt” and display all those lines on screen which are either starting with ‘P’ or with ‘S’.
- Q17. Write a function EUCount() in PYTHON, which should read each character of a text file IMP.TXT, should count and display the occurrences of alphabets E and U (including small cases e and u too).
- Q18. Write a function in PYTHON to search for a BookNo from a binary file “BOOK.DAT”, assuming the binary file is containing the records of the following type: ("**BookNo**", "**Book_name**"). Assume that BookNo is an integer.
- Q19. Write a function in Python for PushS(List) and for PopS(List) for performing Push and Pop operations with a stack of List containing integers.
- Q20. Write a function in Python for InsertQ(List) and for RemoveQ(List) for performing insertion and removal operations with a queue of List containing name of students.
- Q21. Write a menu-driven program implementing user-defined functions to perform different functions on a csv file “student” such as:
- (a) Write a single record to csv.
 - (b) Write all the records in one single go onto the csv.
 - (c) Display the contents of the csv file.
- Q22. Write a menu-driven program to perform all the basic operations using dictionary on student binary file such as inserting, reading, updating, searching and deleting a record.

SECTION –B (SQL)

Q1. Consider the tables EMPLOYEE and SALGRADE given below and answer (a) and (b) parts of this question.

Table: EMPLOYEE

ECODE	NAME	DESIG	SGRADE	DOJ	DOB
101	Abdul Ahmad	EXECUTIVE	S03	23-Mar-2003	13-Jan-1980
102	Ravi Chander	HEAD-IT	S02	12-Feb-2010	22-Jul-1987
103	John Ken	RECEPTIONIST	S03	24-Jun-2009	24-Feb-1983
105	NazarAmeen	GM	S02	11-Aug-2006	03-Mar-1984
108	PriyamSen	CEO	S01	29-Dec-2004	19-Jan-1982

Table: SALGRADE

SGRADE	SALARY	HRA
S01	56000	18000
S02	32000	12000
S03	24000	8000

(a) Write SQL commands for the following statements:

- (i) To display the details of all EMPLOYEEs in descending order of DOJ.
- (ii) To display NAME and DESIG of those EMPLOYEEs whose SALGRADE is either S02 or S03.
- (iii) To display the content of the entire EMPLOYEEs table, whose DOJ is in between '09-Feb-2006' and '08-Aug-2009'.
- (iv) To add a new row with the following content:

109, 'Harish Roy', 'HEAD-IT', 'S02', '9-Sep-2007', '21-Apr-1983'

(b) Give the output of the following SQL queries:

- (i) SELECT COUNT(SGRADE),SGRADE FROM EMPLOYEE GROUP BY SGRADE;
- (ii) SELECT MIN(DOB),MAX(DOJ) FROM EMPLOYEE;
- (iii) SELECT SGRADE, SALARY+HRA FROM SALGRADE WHERE SGRADE ='S02';

Q2. Study the following table and write SQL queries for questions (i) to (iv) and output for (v) and (vi).

Table: Orders

Orderid	Pname	Quantity	Rate	Sale_date	Discount
1001	Pen	10	20	2019-10-05	
1002	Pencil	20	10	2019-10-21	
1003	Book	10	100	2019-11-02	50
1004	Eraser	100	5	2019-12-05	25
1005	Copy	50	20	2019-12-10	

- (i) Write SQL query to display Pname, Quantity and Rate for all the orders that are either Pencil or Pen.
- (ii) Write SQL query to display the orders which are not getting any Discount.
- (iii) Write SQL query to display the Pname, Quantity and Sale_date for all the orders whose total cost (Quantity * Rate) is greater than 500.
- (iv) Write SQL query to display the orders whose Rate is in the range 20 to 100.
- (v) SELECT Pname, Quantity from Orders WHERE Pname LIKE('_e%');
- (vi) SELECT Pname, Quantity, Rate FROM Orders Order BY Quantity DESC;

Q3. Write SQL commands for (i) to (vi) on the basis of relations given below:

BOOKS

book_id	Book_name	author_name	Publishers	Price	Type	qty
k0001	Let us C	Sanjay Mukharjee	EPB	450	Comp	15
p0001	Genuine	J. Mukhi	FIRST PUBL.	755	Fiction	24
m0001	Mastering C++	Kantkar	EPB	165	Comp	60
n0002	VC++ advance	P. Purohit	TDH	250	Comp	45
k0002	Programming with Python	Sanjeev	FIRST PUBL.	350	Fiction	30

ISSUED

Book_ID	Qty_Issued
L02	13
L04	5
L05	21

- (i) To show the books of FIRST PUBL. Publishers written by P. Purohit.
- (ii) To display cost of all the books published for FIRST PUBL.
- (iii) Depreciate the price of all books of EPB publishers by 5%.
- (iv) To display the BOOK_NAME and price of the books, more than 3 copies of which have been issued.
- (v) To show total cost of books of each type.
- (vi) To show the details of the costliest book.

Q4. Consider the given table and answer the questions.

Table: SchoolBus

Rtno	Area_Covered	Capacity	Noofstudents	Distance	Transporter	Charges
1	Vasant Kunj	100	120	10	Shivam travels	100000
2	Hauz Khas	80	80	10	Anand travels	85000
3	Pitampura	60	55	30	Anand travels	60000
4	Rohini	100	90	35	Anand travels	100000
5	Yamuna Vihar	50	60	20	Bhalla travels	55000
6	Krishna Nagar	70	80	30	Yadav travels	80000
7	Vasundhara	100	110	20	Yadav travels	100000
8	Paschim Vihar	40	40	20	Speed travels	55000
9	Saket	120	120	10	Speed travels	100000
10	Janakpuri	100	100	20	Kisan Tours	95000

- (i) To show all information of students where capacity is more than the no. of students in order of rtno.
- (ii) To show area_covered for buses covering more than 20 km., but charges less than 80000.
- (iii) To show transporter-wise total no. of students travelling.
- (iv) To show rtno, area_covered and average cost per student for all routes where average cost per student is—charges/noofstudents.
- (v) Add a new record with the following data:

(11, “Motibagh”,35,32,10, “kisan tours”, 35000)

(vi) Give the output considering the original relation as given:

- (a) select sum(distance) from schoolbus where transporter= “Yadav travels”;
- (b) select min(noofstudents) from schoolbus;
- (c) select avg(charges) from schoolbus where transporter= “Anand travels”;
- (d) select distinct transporter from schoolbus;