

General Instructions:

1. This question paper contains five sections, Section A to E.
 2. All questions are compulsory.
 3. Section A have 18 questions carrying 01 mark each.
 4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
 5. Section C has 05 Short Answer type questions carrying 03 marks each.
 6. Section D has 03 Long Answer type questions carrying 05 marks each.
 7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
 8. All programming questions are to be answered using Python Language only.
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Section A

1. State True or False
Default argument can be given to any variable in function definition
2. Which of the following is a valid write function in python for text files?
a) write () b) writeline()
c) writer() d) linewriter()
3. Given the following dictionaries
dict_exam={"Exam":"AISSEE", "Year":2023}
dict_result={"Total":500, "Pass_Marks":165}
Which statement will merge the contents of both dictionaries?
a) dict_exam.update(dict_result)
b) dict_exam + dict_result
c) dict_exam.add(dict_result)
d) dict_exam.merge(dict_result)
4. Consider the given expression:
not True and False or True
Which of the following will be correct output if the given expression is evaluated?
a) True b) False
c) NONE d) NULL
5. Select the correct output of the code:
a = "Year 2022 at All the best"
a = a.split('2')
b = a[0] + ". " + a[1] + ". " + a[3]
print (b)
a) Year . 0. at All the best
b) Year 0. at All the best
c) Year . 022. at All the best
d) Year . 0. at all the best
6. Which of the following mode in file opening statement generates an error if the file does not exist?
a) a+ b) r+
c) w+ d) None of the above

14. A text file abacus.txt is stored in the storage device. Identify the correct option out of the following options to open the file in read mode.

- i. F= open('abacus.txt','rb')
 - ii. F= open('abacus.txt','w')
 - iii. F= open('abacus.txt','r')
 - iv. F= open('abacus.txt')
- a) only i
 - b) both i and iv
 - c) both iii and iv
 - d) both i and iii

15. Which function is used to read data from a file and store it in list format?

- a) read()
- b) readline()
- c) readlines()
- d) readfullline()

16. Fill in the blank with proper operator

Select * from student where state __('Delhi', 'MP', 'Tamil Nadu')

17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

- a) Both A and R are true and R is the correct explanation for A
 - b) Both A and R are true and R is not the correct explanation for A
 - c) A is True but R is False
 - d) A is false but R is True
17. Assertion (A):- If the arguments in function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments.
Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).
18. Assertion (A): If you don't provide value to argument of function during function call then the function take its default value defined in the function.
Reasoning (R): during functions call argument are required.

Section B

19. Rao has written a code to input a number and check whether it is prime or not. His code is having errors. Rewrite the correct code and underline the corrections made.

```
def func( n=2 , m )
    for i in range (2, n//2):
        if n%i=0:
            return "Number is not prime \n"
            break
        else:
            return "Number is prime \n"

func( 7 )
```

20. Write two points of difference between Circuit Switching and Packet Switching.

OR

Write two points of difference between star and bus topology.

21. Write a function lenWords(String), that takes a string as an argument and returns a tuple containing length of each word of a string. For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3).

22. Predict the output of the following code

```
def Display(str):
    m=""
    for i in range(0,len(str)):
        if (str[i].isupper()):
            m=m+str[i].lower()
        elif (str[i].islower()):
            m=m+str[i].upper()
        else:
            m=m+str[i-1]
    print(m)
```

Display('Fun@Python3.7.0')

23. a) Write the full forms of the following:

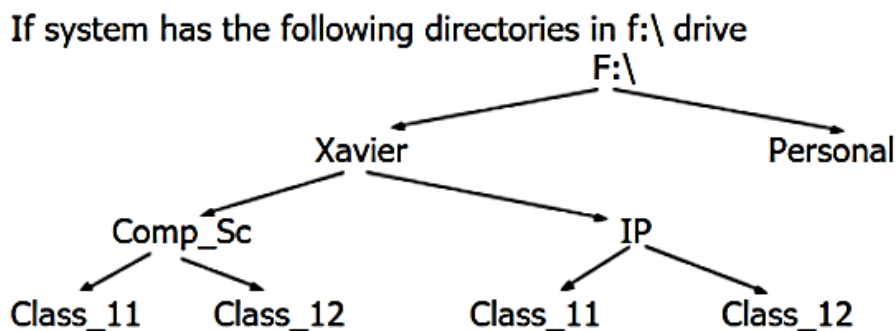
- (i) SMTP (ii) PPP

b) What is the use of TELNET?

24. Predict the output of the Python code given below:

```
def Diff(N1,N2):
    if N1>N2:
        return N1-N2
    else:
        return N2-N1
NUM= [10,23,14,54,32]
for CNT in range (4,0,-1):
    A=NUM[CNT]
    B=NUM[CNT-1]
    print(Diff(A,B),'#', end=' ')
```

25. Assuming current working directory is comp_sc in following structure:



- a) Open the file hello.txt present in IP directory using relative path.
- b) Command to print current working directory.

SECTION C

26. a) Consider the following tables – Bank_Account and Branch:

Table: Bank Account

ACode	Name	Type
A01	Amrita	Savings
A02	Parthodas	Current
A03	Miraben	Current

Table: Branch

ACode	City
A01	Delhi
A02	Mumbai
A01	Nagpur

What will be the output of the following statement?

```
SELECT Name, City
FROM Bank_Account ba , Branch b
where ba.Acode = b.Acode and Type="Saving" ;
```

- b) Write the output of the queries based on the table TECH_COURSE given below:
(attempt any two)

Table: TECH_COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	Animation and VFX	12000	2022-07-02	101
C202	CADD	15000	2021-11-15	NULL
C203	DCA	10000	2020-10-01	102
C204	DDTP	9000	2021-09-15	104
C205	Mobile Application Development	18000	2022-11-01	101
C206	Digital marketing	16000	2022-07-25	103

- (i) SELECT DISTINCT TID FROM TECH_COURSE;
- (ii) SELECT TID, COUNT(*), MIN(FEES) FROM
TECH_COURSE GROUP BY TID HAVING COUNT(TID)>1;
- (iii) SELECT CNAME FROM TECH_COURSE WHERE
FEES>15000 ORDER BY CNAME;
- (iv) SELECT AVG(FEES) FROM TECH_COURSE WHERE FEES BETWEEN 15000 AND 17000;

27. Write a method COUNTLINES() in Python to read lines from text file 'TEXTFILE.TXT' and display the lines which are not starting with any vowel.

Example:

If the file content is as follows:
An apple a day keeps the doctor away.
We all pray for everyone's safety.
A marked difference will come in our country.

The COUNTLINES() function should display the output as:
We all pray for everyone's safety.

28. In a Database, there are two tables with the instances given below:

(attempt any three)

Table: STUDENTS

ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE
1211	MEENA	12A	D	4	A-26	3245678
1212	VANI	10A	D	1	B-25	5456789
1213	MEENA	12B	A	1	NULL	NULL
1214	KARISH	10B	B	3	AB-234	4567890

Table: SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	MR. RAVI	A
1213	VOLLEYBALL	MR. AMANDEEP	B
1211	VOLLEYBALL	MR. GOVARDHAN	A
1212	BASKET BALL	MR TEWARI	B

- a) Write command to display name and game of those students whose address is available in students' table.
- b) Write statement to delete column phone from the table students.
- c) Write the command to display Name of the students who are studying in class 12 and their corresponding Coach names
- d) Write the command to display number of unique games and number of students.

29. . Consider the Table "Infant" shown below.

Table: Infant

ItemCode	Item	DatePurchase	UnitPrice	Discount
101	Frock	2016-01-23	700	10
102	Cot	2015-09-23	5000	25
103	Soft Toy	2016-06-17	800	10
104	Baby Socks	2014-10-16	100	7
105	Baby Suit	2015-09-20	500	5

NOTE: Discount column stores discount %.

Write SQL commands to:

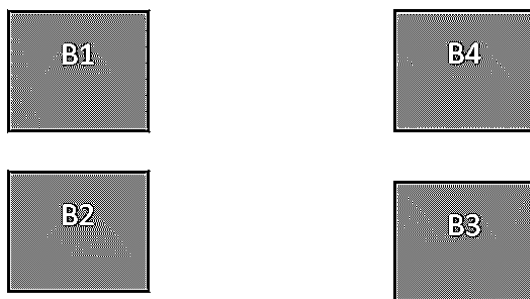
- i To displays the number of items that have more than 10% as discount.
- ii To display the highest unit price of items.
- iii To display the names of items that has 'Baby' anywhere in their item names.

30. Predict the output of the following:-

```
def change(P=5,Q=10):
    P=P/Q
    Q=P%Q
    return P
A=100
B=10
A=change(A,B)
print( A,B, sep='$')
B=change(B)
print(A,B,sep='$',end='###')
```

SECTION D

31. A company ABC Enterprises has four blocks of buildings in New Delhi shown:



Center to center distance between various blocks

B3 TO B1	50 M
B1 TO B2	60 M
B2 TO B4	5 KM
B4 TO B3	170 M
B3 TO B2	125 M
B1 TO B4	90 M

Number of computers in each block:

B1	150
B2	15
B3	15
B4	25

- a) Suggest the most appropriate layout and topology for the connections between the blocks.
- b) Which type of network is present between:
 - i) block b1 and block b2
 - ii) block b2 and block b4
- c) Which one of the following devices will you suggest for connecting all the computers with in each of their blocks?
 - i) Switch
 - ii) Hub
 - iii) Repeater
- d) The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically.
- e) Suggest the most appropriate location of the server, to get the best connectivity. Justify your answer.

32. Your teacher has given you a method/function FilterWords() in python which read lines from a text file NewsLetter.TXT, and display those words, which are lesser than 4 characters. Your teachers intentionally kept few blanks in between the code and asked you to fill the blanks so that the code will run to find desired result. Do the needful with the following python code.

```
def FilterWords():
    c=0
    file=open('NewsLetter.TXT', '_____') #Statement-1
    line = file. _____ #Statement-2
    word = _____ #Statement-3
    for c in word:
        if _____: #Statement-4
            print(c)
    _____ #Statement-5
FilterWords()
```

- a) Write mode of opening the file in statement-1?
- b) Fill in the blank in statement-2 to read the data from the file.
- c) Fill in the blank in statement-3 to read data word by word.
- d) Fill in the blank in statement-4, which display the word having lesser than 4 characters.
- e) Fill in the blank in Statement-5 to close the file.

33. Consider the table EXAM given below. Write commands in MySql for (a) to (d) and output for (e).

Table: EXAM

No.	Name	Stipend	Subject	Average	Division
1	Karan	400	English	15	FIRST
2	Aman	680	Maths	24	FIRST
3	Javed	500	Accounts	NULL	FIRST
4	Bishakh	200	IP	20	SECOND
5	Sugandha	400	History	10	THIRD
6	Suparna	550	Geo	5	THIRD
7	Ankit	400	NULL	10	THIRD

- a) To list the names of those students, who have obtained Division as FIRST in the ascending order of NAME.
- b) To display a report listing NAME, SUBJECT and Annual stipend received assuming that the stipend column has monthly stipend.
- c) To count the number of students, who have either Accounts or IP as Subject.
- d) To insert a new row in the table EXAM:
 - 6, "Mohan", 500, "English", 73, "SECOND"
- e) SELECT COUNT (DISTINCT Subject) FROM EXAM;

Section E

34. a) How ALTER table command is different from UPDATE command?
b) Table Employee has 4 records and table Dept has 3 records in it. Mr. Jain wants to display all information stored in both of these related tables. He forgot to specify equi-join condition in the query. How many rows will get displayed on execution of this query?
c) Write full form of the following:
i. DDL ii. RDBMS
d) write two examples for both DDL and DML commands.

35. a) Write code to print just the last line of a text file "data.txt".
b) which method is used in python to write sequences containing strings into a text file
c) Differentiate between file modes r+ and w+

Or (option belongs to c part only)

Differentiate between readline() and readlines() functions.

- d) Write a statement in Python to open a text file RETEST.TXT so that new data can be written without deleting the previous contents of file.

-X-X-X-X-X-X-