12COM03QP

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PRE-BOARD-I EXAMINATION 2023-2024

CLASS XII-COMPUTER SCIENCE (083)

TIME: 03 HOURS **M.M.: 70**

General Instructions:

1. **This question paper contains five sections, Section A to E.**
2. **All questions are compulsory.**
3. **Section A has 18 questions carrying 01mark 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 02 Long Answer type questions carrying 04 marks each.**
7. **Section E has 03 questions carrying 05 marks each.**
8. **All programming questions are to be answered using Python Language only.**

SECTION A		
1.	Assign a tuple containing an Integer?	(1)
2.	Which of the following data type in Python supports concatenation? a) int b) float c) bool d) str	(1)
3.	What will be output of the following code: d1={1:2,3:4,5:6} d2=d1.popitem() print(d2) a){1:2} b){5:6} c)(1,2) d)(5,6)	(1)
4.	The correct output of the given expression is: True and not False or False (a)False (b)True(c)None (d) Null	(1)
5.	Fill in the blank: _____Command is used to add a new column in a table in SQL. a)update b)remove c)alter d)drop	(1)
6.	Consider the Python statement: f.seek(10, 1) Choose the correct statement from the following: (a) File pointer will move10 byte in forward direction from beginning of the file (b) File pointer will move 10 byte in forwarddirection from end of the file (c) File pointer will move 10 byte inforwarddirection from current location (d) File pointer will move 10 byte in backward direction from current location	(1)
7.	Choose correct SQL query which is expected to delete all rows of a table emp without deleting its structure. a) DELETE TABLE; b) DROP TABLE emp; c) REMOVE TABL emp; d) DELETE FROM emp;	(1)
8.	Which of the following is NOT a DML Command? (a)Insert (b)Update (c)Drop (d)Delete	(1)

9.	Select the correct outpu to the code: a="Year2022atallthe best" a=a.split('a') b=a[0]+"-"+a[1]+"-"+a[3] print (b) a) Year–0-atAllthebest b) Ye-r2022-llthe best c) Year–022-at Allthebest d) Year–0-atallthebest	(1)
10.	Which of the following statement(s) would give an error during execution? S="Lucknow is the Capital of UP " #Statement1 print(S) #Statement2 S[4]='$' #Statement3 S="Thankyou" #Statement4 S=S+"Thankyou" #Statement5 (a)Statement3 (b)Statement4 (c)Statement5 (d)Statement4and5	
11.	Which of the following function returns a list datatype? a) d=f.read() b) d=f.read(10) c) d=f.readline() d)d=f.readlines()	(1)
12.	Select the correct statement,with reference to SQL: a) Aggregate functions ignore NULL b) Aggregate functions consider NULL as zero or False c) Aggregate functions treat NULL as a blank string d) NULL can be written as 'NULL' also.	(1)
13.	Fill in the blank: The _____is a mail protocol used to retrieve mail from a remote server to a local email client. (a)VoIP (b) FTP (c)POP3 (d)HTTP	(1)
14.	What will be the value of y when following expression be evaluated in Python? x=10.0 y=(x<100.0) and x>=10 (a)110 (b)False (c)Error (d)True	(1)
15.	All aggregate functions except _____ignore null values in their input collection. (a) Count(attribute) (b) Count(*) (c) Avg (d) Sum	(1)
16.	Which of the following method is used to create a connection between the MySQL database and Python? a) (a) connector ( ) (b) connect ( ) (c) con ( ) (d)cont()	(1)

	Q 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 c) A is True but R is False d) A is false but R is True	
17.	Assertion (A):-The default arguments can be skipped in the function call. Reason (R):-The function argument will take the default values even if the values are supplied in the function call	(1)
18.	Assertion(A):A tuple can be concatenated to a list,but a list cannot be concatenated to a tuple. Reason(R):Lists are mutable and tuples are immutable in Python.	(1)
	SECTION B	
19.	Ravi has written a function to print Fibonacci series for first 10 element. His code is having errors. Rewrite the correct code and underline the corrections made. Some initial elements of Fibonacci series are: def fibonacci() first=0 second=1 print((“first no. is “, first) print(“secondno.is,second) for a in range (1,9): third=first+second print(third) first,second=second,third fibonacci()	(2)
20.	What possible outputs (s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO. import random AR=[20,30,40,50,60,70] FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO+1): print(AR[K],end=”#“) (i)10#40#70# (ii)30#40#50# (iii)50#60#70# (iv)40#50#70#	(2)
21.	(a) Given is a Python string declaration: myexam="RussiaUkrain" Write the output of : print(myexam[-2:2:-2]) (b) Write the output of the code given below: D1={"sname":"Aman","age":26} D1['age']=27 D1['address']="Delhi" print(D1.items())	(1) (1)

22.	Explain the use of 'Foreign Key' in a Relational Database.Give an example to support your answer.	(2)
23.	(a) Write the full forms of the following: (i) POP (ii)HTTPS (b) Write two points of difference between Circuit Switching and Packet Switching	(1) (1)
24.	Predict the output of the Python code given below: value = 50 def display(N): global value value = 25 if N%7==0: value=value+N else: value=value-N print(value, end="#") display(20) print(value) **OR** 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: if i%2==0: m=m+str[i-1] else: m=m+"#" print(m) Display('Fun@World2.0')	(2)

25.	Consider the following two commands with reference to a table, named Students, having a column named Section: (a) Select count(Section)from Students; (b) Select count(*)from Students; If these two commands are producing different results, (i) What may be the possible reason? (ii) Which command,(a)or(b),might be giving higher value? **OR** Name the aggregate functions which work only with numeric data, and those that work with any type of data.	(2)
	SECTION C	
26.	(a)Consider the following tables– EMPLOYEES AND DEPARTMENT **TABLE : EMPLOYEES** **ENO** **ENAME** **DOJ** **DNO** **E1** **NUSRAT** **2001-11-21** **D3** **E2** **KABIR** **2005-10-25** **D1** **TABLE : DEPARTMENT** **DNO** **DNAME** **D1** **ACCOUNTS** **D2** **HR** **D3** **ADMIN** What will be the output of the following statement? SELECT ENAME, DNAME FROM EMPLOYEES,DEPARTMENT WHERE EMPLOYEE.DNO=DEPARTMENT.DNO; b)Write the output of the queries(i)to(iv) based on the tables given below **Table: ITEM** ID | Item_Name | Manufacturer | Price PC01 | Personal Computer | ABC | 35000 LC05 | Laptop | ABC | 55000 PC03 | Personal Computer | XYZ | 32000 PC06 | Personal Computer | COMP | 37000 LC03 | Laptop | PQR | 57000 **Table: CUSTOMER** C_ID | CName | City | ID 01 | N Roy | Delhi | LC03 06 | R Singh | Mumbai | PC03 12 | R Pandey | Delhi | PC06 15 | C Sharma | Delhi | LC03 16 | K Agarwal | Bangalore | PC01 i) SELECT ITEM_NAME, MAX(PRICE), COUNT(*) FROM ITEM GROUP BY ITEM_NAME; ii) SELECT CNAME,MANUFACTURER FROM ITEM,CUSTOMER WHERE ITEM.ID=CUSTOMER.ID; iii) SELECT ITEM_NAME, PRICE*100 FROM ITEM WHERE MANUFACTURER="ABC"; (iv) SELECT DISTINCT CITY FROM CUSTOMER;	(1) (2)

27. Write a method SHOWLINES() in Python to readlines from text file 'TESTFILE.TXT'and display the lines which do not contain 'ke'. (3)

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 SHOWLINES() function should display the output as:

We all pray for everyone's safety.

OR

Write a function in python to count the number of lines in a text file 'Country.txt' which are starting with an alphabet 'W' or 'H'.
For example,If thef ile contents are as follows:
Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.
The output of the function should be:
W or w:1 H or
h : 2

28. **Consider the following tables GAMES. Give outputs for SQL queries (i)to(iv).** (2+1)

Table:GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	CaromBoard	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	TableTennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	LawnTennis	4	25000	19-Mar-2004

(i) SELECT COUNT(DISTINCT Number) FROM GAMES;
(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(iii) SELECT SUM(PrizeMoney) FROM GAMES;
(iv) SELECT * FROM GAMES WHERE PrizeMoney>12000;

(b)Write the command to view all the databases in an RDBMS.

29. Write a function in PythonConvert() to replaces elements having even values with its half and elements having odd values with twice its value in a list. (3)
eg: if the list contains 3,4,5,16,9 then rearrange the list as 6,2,10,8,18

30. Write a function in Python PUSH_IN(L), where L is a list of numbers. From this list, push all numbers which are multiple of 3 into a stack which is implemented by using another list. (3)

OR

Write a function in Python, Push(KItem),where KItem is a dictionary containing the details of Kitchen items– {Item:price}.

The function should push the names of those items in a stack which have price less than 100. Also display the average price of elements pushed into the stack.

For example: If the dictionary contains the following data:
{"Spoons":116,"Knife":50,"Plates":180,"Glass":60}

The stack should contain
Glass
Knife
The output should be:
The average price of an item is 55.0

SECTION D

31. Tushar is a Python programmer. He has written a code and created a binary file record.dat with employeeid, ename and salary. The file contains 10 records. 4

He now has to delete a record based on the employee id entered by the user. For this purpose, he creates a temporary file, named temp.dat, to store all the records other than the record to be deleted. If the employee id is not found, an appropriate message should to be displayed.

As a Python expert, help him to complete the following code (by completing statements 1, 2, 3, and 4) based on the requirement given above:

(i) Complete Statement #1 to import the required module.
(ii) Write the correct statement required to open a temporary file named temp.dat. (#Statement 2)
(iii) Which statement should Aman fill in Statement 3 to read the data from the binary file, record.dat
(iv) What should be written in Statement4 to write there records in the file temp.dat?

```
import_____                          #Statement1
def update_data():
    rec={} fin=open("record.dat","rb")
    fout=open("_____","")            #Statement2
    found=False
    eid=int(input("Enter employee id:")) while True:
        try:
            rec= _____#Statement3
            if rec["Employee id"]==eid:
                found=Tru
            e else:
                _____                #Statement 4
      except:
         break
    if found==True:
        print("Recorddeleted.")
    else:
        print("Employee with such id is notfound")
        fin.close()
        fout.close()
```

32. A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database Administrator, Abhay has decided that: 4

Name of the database–mystore

Name of the table –STORE

The attributes of STORE are as follows

ItemNo –numeric

ItemName–character of size 20

Scode – numeric

Quantity– numeric

Table : STORE

ItemNo	ItemName	Scode	Quantity
2005	SharpnerClassic	23	60
2003	BallPen0.25	22	50
2002	GelPenPremium	21`	150
2006	GelPenClassic	21	250
2001	EraserSmall	22	110
2004	EraserBig	22	220
2009	BallPen0.5	21	180

(a) Identify the attributes suitable to be declared as primary key
(b) Write the query to add the row with following details
(2010,"Notebook",23,155)
(c)

i) Abhay wants to remove the table STORE from the database MyStore, Help Abhay in writingthe command for removing the table STORE from the database MyStore.

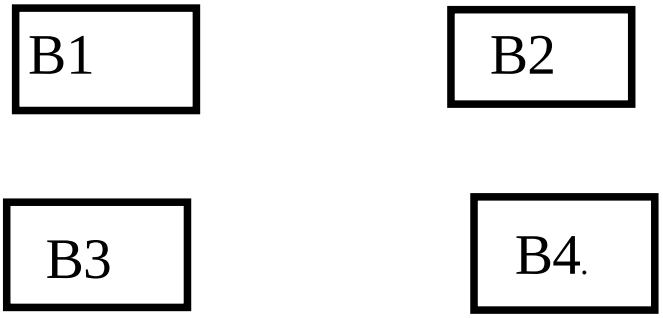
ii) Now Abhay wants to display the structure of the table STOREi.e.name of the attributes and their respective data types that he has used in the table. Write the query to display the same.

OR

(i) Abhay wants to ADD a new column price with data type as decimal. Write the query to add the column..
(ii) Now Abhay wants to remove a column price from the table STORE.Write the query.

SECTION E

33. A company ABC Enterprises has four blocks of buildings as shown:



Distance between various blocks/locations:

B3---- B1:- 50M
B1---- B2:- 60M
B2---- B4:- 25M

B4---- B3:- 170M
B3---- B2:- 125M
B3---- B4:- 90M

Number of computers:

BLOCK B1 --- 150
BLOCK B2 --- 15
BLOCK B3 --- 15
BLOCK B4 --- 25

(i) Suggest the most appropriate topology for the connection between the blocks. (1)

(ii) The company wants internet accessibility in all the blocks. The suitable and cost effective technology for that would be? (1)

(iii) Which devices will you suggest for connecting all the computers with in each of the blocks. (1)

(iv) 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. (1)

(v) Suggest the most appropriate location of the server, to get the best connectivity for maximum number of computers.

34	(a) Define the term Primary Key with respect to RDBMS. Give one example to support your answer (b) The code given below reads records from the table named student and displays only those records who have marks greater than 75.The structure of a record of table Student is: RollNo–integer;Name –string;Clas –integer;Marks– integer Note the following to establish connectivity between Python and MYSQL: (i) Username is root (ii) Password is abc (iii) The table exists in a MYSQL database named **school**. (iv) The details(RollNo,Name,Class and Marks) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to create the cursor object Statement 2 – to execute the query that extracts records of those students whose marks are greater than 75. Statement3-to read the complete result of the query(records whose marks are greater than 75) into the object named data, from the table student in the database. import mysql.connector as mysql def sql_data(): con1=mysql.connect(host="localhost",user="root", password="abc",database="school") mycursor= _____ #Statement 1 print("Students with marks greater than75are:") _____ #Statement 2 data= _____ #Statement3 for i in data: print(i)	(1) (4)
35.	(i) Write one similarity and one difference between a+ and w+ (ii) A binary file "emp.dat" has structure (EID, Ename, designation,salary) Write a function Show() in Python that would read the details of employees from the file "emp.dat" and display the details of those employees whose designation is "Manager" (OR) (i) What is the difference between readline() and readlines() ? (ii) A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price]. Write a function CountRec(Author) in Python which accepts the Author name as parameter and count and return number of books written by the given Author	(2+3)

******END******

KENDRIYA VIDYALAYA SANGATHAN CHENNAI REGION

PRE-BOARD 1- EXAMINATION - 2023-24

Class:XII(Comp.Sc-083)

MARKING SCHEME

SECTION A		
1.	T1=(10,)	(1)
2.	d)str	(1)
3.	d)(5,6)	(1)
4.	(b) True	(1)
5.	c)alter	(1)
6.	(c)file pointer will move10 byte in forward direction from current location	(1)
7.	(d)DELETE FROM emp;	(1)
8.	(c)Drop	(1)
9.	b) Ye-r2022-llthe best	(1)
10.	C)Statement3	(1)
11.	d) d=f.readlines()	(1)
12.	a) **Aggregate functions ignore NULL**.	(1)
13.	(c)POP3	(1)
14.	d)True	(1)
15.	(b)Count(*)	(1)
16.	Ans: (b) connect ( )	(1)
17.	(c)A is True but R is False	(1)
18.	**d)**	(1)
SECTION B		

19.

```
def fibonacci():# missingcolon
   first=0 second=1
   print(“first no. is “, first)    # extra parenthesis
   print(“secondno.is”,second)     #closing quotes is missing
   for a in range (1,9):
         third=first+second
         print(third)
         first,second=second,third
fibonacci()    #fuction calling indentation is wrong
```

20.

Maximum values for
FROM=3, TO=4

OUTPUT: ii)30#40#50#

21.

a) irUas (1)

b)dict_items([('sname','Aman'),('age',27),('address','Delhi')]) (1)

22. (2)

Foreign key is used to ensure referential integrity in a Relational Database. Example:

Let a table, named student, stores the data of all the students of a school with the field AdmNo as thePrimaryKey.
Let another table,namedCocurry, in the same database stores the data of all the participants of co-curricular activities. Let AdmNo is a foreign key in Activity and it references AdmNo of table Student. Now, this foreign key will ensure that no invalid AdmNo is entered in the Cocurry table, thus ensuring the referential integrity.

Consider the following tables in a database:
Table Student with fields:AdmNo(PrimaryKey),Name,Class,Section,Phone Table Cocurry with fields: AdmNo (Foreign key reference Student(AdmNo)), Activity, Grade
The foreign key will ensure that no invalid AdmNo is entered in the Cocurry table, thus ensuring the referential integrity.

23.

(i) POP–Post Office Protocol (1)
(ii) HTTPS:Hyper Text Transfer Protocol Secure
(b) (1)

Circuit Switching	**Packet Switching**
1 In circuit switched network a dedicated path is created between two points by setting the switches.	In packet switched network no dedicated path is created between two points. Only the virtual circuit exists.
2 In circuit switching there is no concept of store and forward transmission.	In virtual packet switched network, each node may store incoming packets and forward them after use.
3 The route followed by packets is always the same.	The route followed by packets is may or may not be different.
4 Circuit-switched network is implemented at the physical layer.	A virtual circuit network is implemented at the data link and a network layer.

24.

a) 50#5*(2marksforcorrectanswer)* (2)

OR

b)fUN#wORLD#2#

25. **(i) The Section column has some NULL entries** (2)
(ii) (b)might give higher value

OR

sum(), avg() work only with numeric data.
max(), and count() work with any type of data.

SECTION C

26. (a) 1 Mark for correct answer
(b) i) PersonalComputer 37000 3
Laptop 57000 2
ii) NRoy PQR
R Singh XYZ
R Pandey COMP C
Sharma PQR K Agarwal
ABC
iii) PersonalComputer 3500000
Laptop 5500000
iv) Delhi
Mumbai
Bangalore
(1/2 mark for each correct result)

27. (3)

```
def SHOWLINES():
    f=open("testfile.txt")
    for line in f:
        if 'ke' not in line:
            print(line.strip())
    f.close()
```

OR

```
def count_W_H():
    f=open("Country.txt","r")
    W,H=0,0
    r=f.read()
    for x in r:
        if x[0]=="W" or x[0]=="w":
            W=W+1
        elif x[0]=="H" or x[0]=="h":
            H=H+1
f.close()
    print(" W or w:",W)
        print("H or h:",H)
```

28 (a)
i) 2
ii) 19-Mar-200412-Dec-2003
iii) 59000
iv)

GCode	GameName	Number	PrizeMoney	ScheduleDate
108	LawnTennis	4	25000	19-Mar-2004

b) Show tables;

29.	**def convert(l1):** **for i in range(0,len(l1)):** **if l1[i]%2==0:** **l1[i]=l1[i]//2** **else:** **l1[i]=l1[i]*2** **print(l1)** **l1=[3,4,5,16,9]** **convert(l1)**	(3)
30.	**def PUSH_IN(L):** **L1=[]** **for i in L:** **if i%3==0:** **L1.append(i)** **if len(L1)==0:** **print(" EmptyStack")** **else:** **print(L1)** **L=[4,6,9,12,5]** **PUSH_IN(L)** **OR** **def Push(KItem): st=[]** **#stack** **c,s=0,0** **for k,v in KItem.items(): if v<100:** **st.append(k) c+=1** **s+=v** **if c!=0:** **av=s/c** **print("The average price of an item is",av)**	(3)
	SECTION D	
31.	import **pickle** #Statement1 def update_data(): rec={} fin=open("record.dat","rb") fout=open(**"temp.dat"**,**"wb"**) #Statement2 found=False eid=int(input("Enteremployeeid:")) while True: try: rec=**pickle.load(fin)**#Statement3 if rec["Employee id"]==eid: found=True else: **pickle.dump(rec,fout)**#Statement4 except: break if found==True: print("Recorddeleted.") else: print("Employeewithsuchidisnotfound") fin.close() fout.close()	
32.	(a) ItemNo (b) INSERT INTO STORE VALUES(2010,"Notebook",23,155); (c)	

	(i) DROP TABLE STORE; (ii) DESCRIBE STORE; **OR** (i) Alter table STORE add price decimal(2,1); Alter table Store drop price;	
	SECTION E	
33.	**(i)star** **(ii)Broadband** **(iii)Switch/Hub** **(iv)RadioWave** **(v)BlockB1**	
34.	(i) (a) The set of one or more attributes which uniquely identify a row/record in a table is known as Primary Key Eg: Rollno field of table Student (or any other example) (b) import mysql.connector as mysql def sql_data(): con1=mysql.connect(host="localhost",user="root", password="tiger", database="school") mycursor= **con1.cursor()** #Statement 1 print("Students with marks greater than 75 are:") **mycursor.execute("select * from student where marks>75")** #Statement 2 data= **mycursor.fetchall()** #Statement3 for i in data: print(i)	

35.	(i) **Similarity : In both the modes, we can do read and write operations** **Difference : In w+ mode file will be truncated (previous data lost) while in a+ mode, file's existing data will not be deleted and new data will be added at the end of the file** (ii) import pickle def Show(): fin=open("emp.dat","rb") try: while True: rec=pickle.load(fin) if (rec[2]=='Manager'): print(rec[0],rec[1], rec[2],rec[3]) except: fin.close() (OR) (i) readline() :This function will read one line from the file. readlines() : This function will read all the lines from the files. (ii) def CountRec(Author): fobj=open("Book.dat","rb") num = 0 try: while True: rec=pickle.load(fobj) if Author==rec[2]: num = num + 1 except: fobj.close() return num	(2+ 3)

******END******

(SET 1)

Computer Science (083)

PRE BOARD EXAMINATION 2023-24

Maximum Marks: 70 **Time Allowed: 3 hours**

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.

SECTION A		
1.	State True or False "Dictionaries in python are mutable."	1
2.	Which of the following is an invalid identifier a)myname b)p9tv c)def d)_new	1
3.	Which one of the following is the function to get list of keys from a dictionary dict in python? a. dict.getkeys() b. dict.getvalues() c. dict.keys() d. None Of These	1
4.	Consider the given expression: True OR NOT False AND True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL	1
5.	Select the correct output of the code: Str="I will Succeed"	1

	lis=str.split(" ") print(lis[-1]) (a) I (b) will (c) Succeed (d) "I will Succeed"	
6.	Which of the following methods will give the current position of the file pointer? (a)seek() (b)tell() (c)getloc() (d) None of the above	1
7.	Fill in the blank: _____Command is used to change the structure of the table in SQL. (a)update (b)remove (c)alter (d)drop	1
8.	Which of the following commands will delete the row of the table from MYSQL database? (a) DELETE (b) DROPTABLE (c) REMOVETABLE (d) ALTERTABLE	1
9.	Which of the following statement(s) would give an error after executing the following code? T=(8,9,7,6) # Statement 1 print(T) # Statement2 T=(7,9,7,6) # Statement3 T[1]=8 # Statement4 T=T+(1,2,3) # Statement5 (a) Statement3 (b) Statement4 (c) Statement5 (d) Statement 4 and5	1
10.	Fill in the blank: _____is an attribute or set of attributes eligible to become primary key. (a) PrimaryKey (b) ForeignKey (c) CandidateKey	1

	(d) Alternate Key	
11.	The default mode of opening a file in pyhton (a) append (b) read (c) write (d) both b and c	1
12.	Which of the following can be used as command to get the structure of a table in mysql (a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL	1
13.	Fill in the blank: _____Is the protocol used for server to server mail transfer? (a)VoIP (b)SMTP (c)PPP (d)HTTP	1
14.	What will the following expression be evaluated to in Python? print(2**3**2//8) (a)64.0 (b)64 (c)8 (d)None Of These	1
15.	Which clause is used to apply conditions with GROUP BY (a) WHERE (b) HAVING (c) LIKE (d) None Of These	1
16.	Which function is used to establish connection between python and SQL database? (a) connection (b) connect (c) getconnection (d) getconnect	1
Q17 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):-Functions in a program increases the modularity and readability of the program Reasoning (R):-Usage of Functions increases the execution speed of the program	1
18.	Assertion (A): If a file is opened in binary mode its contents are viewed as a sequence of bytes. Reason (R): A text file also can be opened in binary mode	1
	SECTION B	
19.	Rahul has written a code to input a number and return its reverse. His code is having errors. Rewrite the correct code and underline the corrections made. def reverse() n=int(input("Enter number :: ") rev=0 while(num>0): r=num%10 rev=rev*10+r num=num//10 return rev	2
20.	What do you mean by protocol? Give two examples **OR** What is a MODEM? Explain its use?	2
21.	(a) Given is a Python string declaration: Mystr=”I will win” Write the output of: print(Mystr[2:6]) (b) Write the output of the code given below: dictcount={“age1”:26,”age2”:32,”age3”:40} sum=0 for key in dictcount: sum=sum+dictcount[key] print(sum)	1 1
22.	Explain the use of ‘Primary Key’ in a Relational Database Management System. Give example to support your answer.	2
23.	(a) Write the full forms of the following: (i) FTP (ii)TCP	2

	(b) What is the use of POP3?	
24.	Predict the output of the Python code given below: def product(L1,L2): p=0 for i in L1: for j in L2: p=p+i*j return p LIST=[1,2,3,4,5,6] l1=[] l2=[] for i in LIST: if(i%2==0): l1.append(i) else: l2.append(i) print(product(l1,l2)) OR Predict the output of the Python code given below: tuple1 = (33, 24, 44, 42, 54 ,65) list1 =list(tuple1) new_list = [] for i in list1: if i>40: new_list.append(i) new_tuple = tuple(new_list) print(new_tuple)	2
25.	Explain the use of DISTINCT keyword in python with appropriate example OR What is called DDL commands in mysql?Give examples?	2
	SECTION C	
26.	a)Consider the following tables -Product and Supplier: Table:Product Pid | pname | sid P1 | pen | S1 P2 | ball | S2 P3 | pencil | S3 Table:Supplier Sid | sname S1 | Anmol S2 | Aradhya S3 | Sunil S4 | Vishal	1+2

What will be the output of the following statement?
SELECT * FROM product NATURAL JOIN SUPPLIER;
b)Write the outputof the queries (i) to (iv) based on the table EMPLOYEE given below

Empid	Empname	Salary	Deptid
E1	Prabhath	12000	D1
E2	Nikhil	14000	D1
E3	Devansh	10000	D2
E4	Debraj	15000	D3
E5	Aron	18000	D1

(i)SELECT DISTINCT deptid from Employee;
(ii)SELECT deptid,count(*),min(salary) from employee GROUP BY deptid HAVING count(deptid)>2;
(iii)SELECT empname FROM employee WHERE salary>14000 ORDER BY empname;
(iv)SELECT SUM(SALARY) FROM Employee WHERE SALARY BETWEEN 15000 AND 18000;

27. Write a method COUNTLINES() in python to read lines from text file MYSTORY.TXT and display the count of lines which are starting with letter T
Example:if the file content is as follows:
Trees are the precious
We should protect trees
This way we can serve nature

The COUNTLINES() function should display output as:
The number of lines starting with letter T :2

3

OR

Write a function COUNTOWEL() IN PYTHON which should read each character of a text file CHARACTER.TXT and display the count of vowels

Example:

If the file content is as follows:
Exam is going on well

The COUNTOWEL() function should display the output as:
7

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below:

3

BOOK

Book_id	Book_name	Price	Qty	Author_id
1001	My first C++	323	12	204
1002	SQL basics	462	6	202
1003	Thunderbolts	248	10	203
1004	The tears	518	3	204

AUTHOR

Author_id	Author_name	Country
201	William Hopkins	Australia
202	Anita	India
203	Anna Roberts	USA
204	Brain Brooke	Italy

(i) SELECT Author_id, avg(price) from BOOK GROUP BY Author_id;

ii) SELECT MAX(price),MIN(price) from BOOK;

ii) SELECT Book_name,Author_name,country from BOOK B, AUTHOR A WHERE B.Author_id = A.Author_id AND price>300;

iv) SELECT Author_name from AUTHOR WHERE Author_name LIKE "A%";

29. Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'even list' that stores even numbers in the list. 3

For example:

If L contains [1,2,3,4,5,6,7,8]

The even list will have - [2,4,6,8]

30. A list contains following record of a student: 3
[student_name, age, hostel]

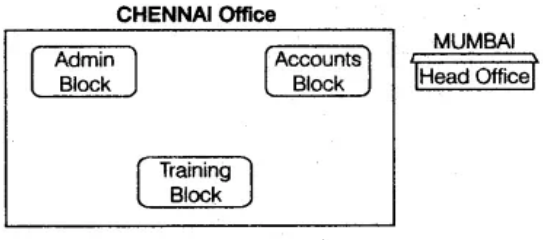
Write the following user defined functions to perform given operations on the stack named '**stud_details'**:

(i) Push_element() - To Push an object containing name and age of students who live in hostel "Ganga" to the stack

(ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.

For example:
If the lists of customer details are:

["Barsat",17,"Ganga"]
["Ruben", 16,"Kaveri"]
["Rupesh",19,"Yamuna"]
The stack should contain

	["Barsat",17,"Ganga"] The output should be: ["Barsat",17,"Ganga"] Stack Empty **OR** A list named as Record contains following format of for students: [student_name, class, city]. Write the following user defined functions to perform given operations on the stack named 'Record': (i) Push_record(Record) – To pass the list Record = [['Rahul', 12,'Delhi'], ['Kohli',11,'Mumbai'], ['Rohit',12,'Delhi']] and then Push an object containing Student name, Class and City of student belongs to 'Delhi' to the stack Record and display and return the contents of stack (ii) Pop_record(Record) – To pass following Record [["Rohit","12","Delhi"] ["Rahul", 12,"Delhi"]] and then to Pop all the objects from the stack and at last display "Stack Empty" when there is no student record in the stack. Thus the output should be: - ["Rohit","12","Delhi"] ["Rahul", 12,"Delhi"] Stack Empty	
	SECTION D	
31	Hi-tech Training center, a Mumbai based organization is planning to expand their training institute to Chennai. At Chennai compound, they are planning to have three different blocks for admin, training and accounts related activities. As a network consultant you have to suggest some network related solutions to the organization  Shortest distance between the blocks are given below: Admin → Accounts 300 meters Accounts →training 150 meters Number of computers installed in each block are as follows: Training Block 150 Accounts block 30	

	I	Admin → Training 200 meters Mumbai → 1300 KM Chennai office	Admin Block 20

i) Suggest the most suitable block to house the server at Chennai block for best and effective connectivity. 1

ii) Suggest the type of network for the new training institute and draw the cable layout for the Chennai office 1

iii) Suggest a hardware/software that would provide the data security for entire network of Chennai region. 1

iv) Suggest a device that shall be needed to provide wireless internet access to all smart phones/laptop users in Chennai office. 1

v) Suggest the protocol used for video conferencing between Chennai office and Mumbai office 1

32. **(a) Write the output of the code given below:** 2+3

```
val=4
def findval(m,n=10):
 val=0
 val=val+m*n
a=10
b=20
findval(a,b)
print(val,end="-")
findval(a)
print(val,end="-")
```

(b) The code given below inserts the following record in the table Employee:

Empid – integer Name – string salary-float
Note the following to establish connectivity between Python and MYSQL:

- **Username is root**
- **Password is tiger**
- **The table exists in a MYSQL database named Empolyee.**
- **The details (Empid, Name, salary) are to be accepted from the user.**

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the command that inserts the record in the table Employee.
Statement 3- to add the record permanently in the database

```
import mysql.connector
from mysql.connector import Error
connection = mysql.connector.connect(host='localhost',
                                     database='Employee',
                                     user='root',
                                     password='tiger')

cursor=_____#STATEMENT1
empid=int(input("enter Empid"))
name=input("enter name")
salary=float(input("ENTER SALARY"))
result = _____#STATEMENT2
_____#STATEMENT3
```

OR

(a) Predict the output of the code givenbelow:

```
s="PREboardCS*2022!"
j=2
for i in s.split('*'):
   k = i [ : j ]
   if k.isupper():
      j=j+1
   elif k.isdigit():
      j=j+2
   else:
      j=j+3
print(s [ j : : j ] )
```

(b) The code given below reads the following record from the table named Employee **and displays only those records who have Salary greater than 25000:**

Note the following to establish connectivity between Python and MYSQL:

- **Username is root**
- **Password is tiger**
- **The table exists in a MYSQL database named** Employee**.**

Write the following missing statements to complete the code: Statement 1 – to form the cursor object
Statement 2 – to execute the query that extracts records of those Employees who have salary greater than 25000.
Statement 3- to read the complete result of the query (records whose salary greater than 25000) into the object named records, from the table Employee in the database.

```
import mysql.connector
```

	connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') cursor=_____#STATEMENT1 _____#STATEMENT2 records = _____#STATEMENT3 for row in records: print("Empid",row[0],end=" ") print("name",row[1],end=" ") print("salary",row[2],end=" ") print()	
33.	What is a csv file? Write a Program in Python that defines and calls the following user defined functions: • INSERT() – To accept and add data of a student to a CSV file 'student.csv'. Each record consists of a list with field elements as sid, name and marksto store student id, name and marks respectively. • COUNTSTUDENTS() – To count the number of records present in theCSV file named'student.csv'. OR What is the purpose of delimiter? Write a Program in Python that defines and calls the following user defined functions: • add() – To accept and add data of a product to a CSV file 'product.csv'. Each record consists of a list with elements as pid, pnameand priceto storeproduct id, product name and pricerespectively. • search()- To display the records of the products whose price is more than5000.	5
	SECTION E	
34.	Rahul created following table TRAVEL to store the travel details	1+1+2

TNO	TNAME	TDATE	KM	VTYPE	NOP
101	NANDA	25-11-2019	100	VOLVO BUS	32
103	SANAL	09-12-2019	210	ORDINARY BUS	45
105	RAMU	06-12-2019	300	VOLVO BUS	40
102	SOMU	25-12-2019	120	AC DELEX BUS	35
107	NEHA	05-11-2019	250	ORDINARY BUS	25
104	SNEHA	06-11-2019	300	VOLVO BUS	32
106	KIRAN	12-12-2019	125	VOLVO BUS	43

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) If 3 columns are added and 1rows are deleted from the table TRAVEL, what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

a. Insert the following record into the table

110	BIMAL	28-11-2022	200	VOLVO BUS	40

b. Increase KM travelled by 10 if the VTYPE is VOLVO.

OR (Option for part iii only)

(iii) Write the statements to:

a. Delete the record of travel of traveler NANDA.

b. Add a column MILEAGE in the table with data type as integer

35. Biplab is a Python programmer. He has written a code and created a binary file STUDENT.DAT which has structure (admission_number, Name, Percentage). He has written an incomplete function *countrec()* in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%.As a Python expert, help him to complete the following code based on the requirement given above:

```
import _____#statement1
def countrec():
 _____#Statement2
 records=_____#Statement3
 count=0
 for record in records:
  if(_____):#Statement4
   count=count+1
```

	print("ID",record[0]) print("NAME",record[1]) print("PERCENTAGE",record[2]) print("No of students with perentage above 75",count) (i) Which module should be imported in the program? (Statement1) (ii) Write the correct statement required to open a file named STUDENT.DAT in binary mode (Statement2) (iii) Which statement should Biplab fill in Statement 3 to read the data from the binary file, STUDENT.DATand in Statement 4 to check the percentage? **OR** Explain various functions used in writing rows in csv file.	1 1 2

(SET 1)

Computer Science (083)

PRE BOARD EXAMINATION
MARKING SCHEME

Maximum Marks:70 **Time Allowed: 3 hours**

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 Q34 against part only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	State True or False "Dictionaries in python are mutable." Ans:True	1
2.	Which of the following is an invalid identifier a)myname b)p9tv c)def d)_new Ans:c def	1
3.	Which one of the following is the function to get list of keys from a dictionary dict in python? a. dict.getkeys() b. dict.getvalues() c. dict.keys() d. None Of These Ans: c dict.keys()	1
4.	Consider the given expression: True OR NOT False AND True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) NONE (d) NULL Ans:A True	1
5.	Select the correct output of the code: Str="I will Succeed"	1

	lis=str.split(““) print(lis[-1]) (a) I (b) will (c) Succeed (d) ”I will Succeed” ANS:c Succeed	
6.	Which of the following methods will give the current position of the file pointer? (a)seek() (b)tell() (c)getloc() (d) None of the above ANS:b tell()	1
7.	Fill in the blank: _____command is used to change the structure of the table in SQL. (a)update (b)remove (c)alter (d)drop ANS: c alter	1
8.	Which of the following commands will delete the contents of the table from MYSQL database? (a) DELETE (b) DROPTABLE (c) REMOVETABLE (d) ALTERTABLE ANS:a DELETE	1
9.	Which of the following statement(s) would give an error after executing the following code? T=(8,9,7,6) # Statement 1 print(T) # Statement2 T=(7,9,7,6) # Statement3 T[1]=8 # Statement4 T=T+(1,2,3) # Statement5 (a) Statement3 (b) Statement4 (c) Statement5 (d) Statement 4 and5 ANS:b statement 4	1

10.	Fill in the blank: _____is an attribute or set of attributes eligible to become primary key. (a) PrimaryKey (b) ForeignKey (c) CandidateKey (d) Alternate Key ANS:c candidate key	1
11.	The default mode of opening a file in pyhton (a) append (b) read (c) write (d) both b and c ANS:b read	1
12.	Which of the following can be used as command to get the structure of a table in mySQL (a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL ANS:a DESCRIBE	1
13.	Fill in the blank: _____Is the protocol used for server to server mail transfer? (a)VoIP (b)SMTP (c)PPP (d)HTTP ANS:b SMTP	1
14.	What will the following expression be evaluated to in Python? print(2**3**2//8) (a)64.0 (b)64 (c)8 (d)None Of These ANS: b 64	1
15.	Which clause is used to apply conditions with GROUP BY (a) WHERE (b) HAVING (c) LIKE (d) None Of These ANS:b HAVING	1

16.	Which function is used to establish connection between python and SQL database? (a) connection (b) connect (c) getconnection (d) getconnect ANS:b connect	1

Q17 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):-Functions in a program increases the modularity and readability of the program Reasoning (R):-Usage of Functions increases the execution speed of the program ANS: c A is True but R is False	1
18.	Assertion (A): If a file is opened in binary mode its contents are viewed as a sequence of bytes. Reason (R): A text file also can be opened in binary mode ANS: b Both A and R are true and R is not the correct explanation for A	1
	SECTION B	
19.	Rahul has written a code to input a number and return its reverse. His code is having errors. Rewrite the correct code and underline the corrections made. def reverse() n=int(input("Enter number :: ") rev=0 while(num>0): r=num%10 rev=rev*10+r num=num//10 return rev ANS: def reverse(): n=int(input("Enter number :: ") rev=0 while(num>0): r=num%10 rev=rev*10+r num=num//10 return rev ½ marks for each correction	2

20.	What do you mean by protocol? Give two examples ANS:1 mark for the definition and 1 mark for the example **OR** What is a MODEM? Explain its use? ANS:MODULATOR DEMODULATOR 2marks for correct explanation.	2
21.	(a) Given is a Python stringdeclaration: Mystr="I will win" Write the output of: print(Mystr[2:6]) ANS:will (b) Write the output of the code givenbelow: dictcount={"age1":26,"age2":32,"age3":40} sum=0 for key in dictcount: sum=sum+dictcount[key] print(sum) ANS:98	1 1
22.	Explain the use of 'Primary Key' in a Relational Database Management System. Give example to support your answer. 1 mark for example and 1 mark for explanation	2
23.	(a) Write the full forms of thefollowing: (i) FTP (ii)TCP (b) What is the use of POP3? ANS:FTP-FILE TRANSFER PROTOCOL ½ MARKS TCP-TRANSMISSION CONTROL PROTOCOL ½ MARKS 1 MARK FOR THE EXPLANATION OF POP3	2
24.	Predict the output of the Python code given below: def product(L1,L2): p=0 for i in L1: for j in L2: p=p+i*j return p LIST=[1,2,3,4,5,6] l1=[] l2=[] for i in LIST: if(i%2==0): l1.append(i) else: l2.append(i) print(product(l1,l2))	2

ANS:108

OR

Predict the output of the Python code given below:

```
tuple1 = (33, 24, 44, 42, 54 ,65)
list1 =list(tuple1)
new_list = []
for i in list1:
 if i>40:
   new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

ANS: (44, 42, 54, 65)

25. Explain the use of DISTINCT keyword in python with appropriate example — 2

ANS:DISTINCT keyword discards duplicate vales
1 mark for explanation and 1 mark for example

OR

What is called DDL commands in mySQL?Give examples?
DDL-DATA DEFENITION LANGUAGE
EXAMPLE:CREATE ,DROP,ALTER

SECTION C

26. a)Consider the following tables -Product and Supplier: — 1+2

Table:Product

Pid	pname	sid
P1	pen	S1
P2	ball	S2
P3	pencil	S3

Table:Supplier

Sid	sname
S1	Anmol
S2	Aradhya
S3	Sunil
S4	Vishal

What will be the output of the following statement?
SELECT * FROM product NATURAL JOIN SUPPLIER;
ANS:

Pid	pname	sid	Sname
P1	Pen	S1	Anmol
P2	Ball	S2	Aradhya
P3	Pencil	S3	Sunil

b)Write the outputof the queries (i) to (iv) based on the table EMPLOYEE given below

Empid	Empname	Salary	Deptid

E1	Prabhath	12000	D1
E2	Nikhil	14000	D1
E3	Devansh	10000	D2
E4	Debraj	15000	D3
E5	Aron	18000	D1

(i)SELECT DISTINCT deptid from Employee;
(ii)SELECT deptid,count(*),min(salary) from employee GROUP BY deptid HAVING count(deptid)>2;
(iii)SELECT empname FROM employee WHERE salary>14000 ORDER BY empname;
(iv)SELECT SUM(SALARY) FROM Employee WHERE SALARY BETWEEN 15000 AND 18000;
ANS:(i)

Deptid
D1
D2
D3

1/2 marks
(ii)

Deptid	count(*)	min(salary)
D1	3	12000

1/2 marks

(iii)

Empname
Aron
Debraj

1/2 marks
(iv)

Sum(Salary)
33000

1/2 marks

27. Write a method COUNTLINES() in python to read lines from text file MYSTORY.TXT and display the count of lines which are starting with letter T
Example:if the file content is as follows:
Trees are the precious
We should protect trees
This way we can serve nature

The COUNTLINES() function should display output as:
The number of lines starting with letter T :2

ANS:

```
def COUNTLINES():
 fp=open("MYSTORY.TXT","r")
```

3

```
count=0
lines=fp.readlines()
for line in lines:
  if(line[0]=="T"):
    count=count+1
print("The number of lines starting with letter T :",count)
```

OR

Write a function COUNTOWEL() IN PYTHON which should read each character of a text file CHARACTER.TXT and display the count of vowels

Example:

If the file content is as follows:
Exam is going on well

The COUNTOWEL() function should display the output as:
7
ANS:

```
def COUNTVOWELS():
 fp=open("CHARACTER.TXT","r")
 count=0
 characters=fp.read()
 characters=characters.lower()
 for character in characters:
   if(chatacter in ['a','e','i','o','u']):
     count=count+1
 print(count)
```

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below: 3

BOOK

Book_id	Book_name	Price	Qty	Author_id
1001	My first C++	323	12	204
1002	SQL basics	462	6	202
1003	Thunderbolts	248	10	203
1004	The tears	518	3	204

AUTHOR

Author_id	Author_name	Country
201	William Hopkins	Australia
202	Anita	India
203	Anna Roberts	USA
204	Brain&Brooke	Italy

(i) SELECT Author_id, avg(price) FROMBOOK GROUP BYAuthor_id;

ii) SELECT MAX(price),MIN(price) FROM BOOK;

ii) SELECTBook_name,Author_name,countryFROM BOOK B, AUTHOR A WHERE B.Author_id = A.Author_idANDprice>300;

iv) SELECT Author_name FROM AUTHOR WHERE Author_nameLIKE "A%";

ANS:

(i)

Author_id	Avg(price)
204	420.5
202	462
203	248

(ii)

MAX(price)	MIN(price)
518	248

(iii)

Book_name	Author_name	Country
My First C++	Brain&Brooke	Italy
SQL Basics	Anita	India
The Tears	Brain&Brooke	Italy

(iv)

Author_name
Anita
Anna Roberts

29. Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'evenlist' that stores even numbers in the list. 3

For example:

If L contains [1,2,3,4,5,6,7,8]

The evenlist will have - [2,4,6,8]

ANS:

```
def EVEN_LIST(L):
 evenlist=[]
 for i in L:
   if(i%2==0):
     evenlist.append(i)
```

	return evenlist	
30.	A list contains following record of a student: [student_name, age, hostel] Write the following user defined functions to perform given operations on the stack named '**stud_details'**: (i) Push_element() - To Push an object containing nameand age of students who live in hostel "Ganga" to the stack (ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in thestack. For example: If the lists of customer detailsare: ["Barsat",17,"Ganga"] ["Ruben", 16,"Kaveri"] ["Rupesh",19,"Yamuna"] The stack should contain ["Barsat",17,"Ganga"] The output should be: ["Barsat",17,"Ganga"] Stack Empty ANS: stud_details=[] def push_element(lis): if(lis[2]=="Ganga"): stud_details.append([lis[0],lis[1]]) def pop_element(): while(len(stud_details)>0): print(stud_details.pop()) print("Stack Empty") **OR** def Push_record(): # (1½ mark for correct push element) for i in List: if i[2]=="Delhi": Record.append(i) print(Record) def Pop_record(): # (1½ mark for correct push element) while True: if len(Record)==0: print('Empty Stack') break	3

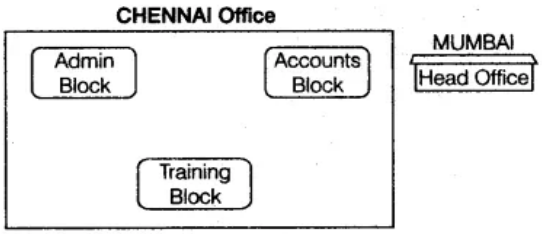
```
        else:
                print(Record.pop())
Push(Dict_Product)
```

(1 mark for correct function header
1 mark for correct loop
½ mark for correct If statement
½ mark for correct display of count)

SECTION D

31

HiTech Training center, a Mumbai based organization is planning to expand their training institute to Chennai. At Chennai compound, they are planning to have three different blocks for admin, training and accounts related activities. As a network consultant you have to suggest some network related solutions to the organization



I

Shortest distance between the blocks are given below:		Number of computers installed in each block are as follows:	
Admin → Accounts	300 meters	Training Block	150
Accounts →training	150 meters	Accounts block	30
Admin → Training	200 meters	Admin Block	20
Mumbai → Chennai office	1300 KM		

i) 1

ii) Suggest the most suitable block to house the server at Chennai block for best and effective connectivity. 1

iii) Suggest the type of network for the new training institute and draw the cable layout for the Chennai office 1

iv) Suggest a hardware/software that would provide the data security for entire network of Chennai region. 1

v) Suggest a device that shall be needed to provide wireless internet access to all smart phones/laptop users in Chennai office. 1

Suggest the protocol used for video conferencing between Chennai

	office and Mumbai office ANS: i)Training Block ii)LAN iii)FIREWALL iv)ACCESS POINT v)H.323 or SIP	
32.	**(a) Write the output of the code given below:** val=4 def findval(m,n=10): val=0 val=val+m*n a=10 b=20 findval(a,b) print(val,end="-") findval(a) print(val,end="-") **ANS:4-4-** **(b) The code given below inserts the following record in the table Employee:** **Empid – integer Name – string salary-float** **Note the following to establish connectivity between Python and MYSQL:** **Username is root** **Password is tiger** **The table exists in a MYSQL database named Empolyee.** **The details (Empid, Name, salary) are to be accepted from the user.** **Write the following missing statements to complete the code:** **Statement 1 – to form the cursor object** **Statement 2 – to execute the command that inserts the record in the table Employee.** **Statement 3- to add the record permanently in the database** import mysql.connector from mysql.connector import Error connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') cursor=_____#STATEMENT1 empid=int(input("enter Empid"))	2+3

```
name=input("enter name")
salary=float(input("ENTER SALARY"))
result = _____#STATEMENT2
_____#STATEMENT3
```

ANS:

STATEMENT1:connection.cursor()

STATEMENT2:cursor.execute("insert into employee values(%s,%s,%s)",(empid,name,salary))

STATEMENT3:connection.commit()

OR

(a) Predict the output of the code givenbelow:

```
s="PREboardCS*2022!"
j=2
for i in s.split('*'):
   k = i [ : j ]
   if k.isupper():
      j=j+1
   elif k.isdigit():
      j=j+2
   else:
      j=j+3
   print(s [ j : : j ] )
```

ANS:

brS0!

(b) The code given below reads the following record from thetable named Employee**and displays only those records who have Salary greater than 25000:**

Note the following to establish connectivity between Python and MYSQL:

- **Username isroot**
- **Password istiger**
- **The table exists in a MYSQL database named**Employee**.**

Write the following missing statements to complete the code: Statement 1 – to form the cursor object
Statement 2 – to execute the query that extracts records of those Employees who have salary greater than 25000.
Statement 3- to read the complete result of the query (records whose salary greater than 25000) into the object named records, from the table Employeein the database.

```
import mysql.connector
connection = mysql.connector.connect(host='localhost',
                                     database='Employee',
                                     user='root',
                                     password='tiger')
cursor=_____#STATEMENT1
_____#STATEMENT2
```

	records = _____#STATEMENT3 for row in records: print("Empid",row[0],end=" ") print("name",row[1],end=" ") print("salary",row[2],end=" ") print() ANS: Statement 1 :connection.cursor() Statement 2 :cursor.execute("select * from employee where salary>25000") Statement 3:cursor.fetchall()	
33.	What is a csv file? Write a Program in Python that defines and calls the following user defined functions: • INSERT() – To accept and add data of a student to a CSV file 'student.csv'. Each record consists of a list with field elements as sid, name and marksto store student id, name and marks respectively. • COUNTSTUDENTS() – To count the number of records present in theCSV file named'student.csv'. ANS: import csv def INSERT(): studlist=[] while(choice=="y"): sid=int(input("Enter Student id")) name=input("Enter name") marks=input("Enter Marks") choice=input("Enter y to continue or press any to exit") student=[sid,name,marks] studlist.append(student) file=open("student.csv","w") writer=csv.writer(file) writer.writerows(studlist) def COUNTSTUDENTS(): file=open("student.csv","r") reader=csv.reader(file) print("No of students",len(reader)) OR What is the purpose of delimiter? Write a Program in Python that defines and calls the following user defined functions: • add() – To accept and add data of a product to a CSV file 'product.csv'. Each record consists of a list with elements as pid, pnameand priceto storeproduct id, product name and pricerespectively. • search()- To display the records of the products whose price is more than5000.	5

ANS:

```
import csv
def add():
  prodist=[]
  while(choice=="y"):
    pid=int(input("Enter product id"))
    pname=input("Enter name")
    price=input("Enter price")
    choice=input("Enter y to continue or press any to exit")
    product=[pid,pname,price]
    prodlist.append(product)
  file=open("product.csv","w")
  writer=csv.writer(file)
  writer.writerows(prodlist)
def search():
  file=open("product.csv","r")
  reader=csv.reader(file)
  for record in reader:
    if(record[2]>5000):
      print("Product id",record[0])
      print("Product name",record[1])
      print("Product price",record[2])
```

1 mark for correct explanation of question
½ marks for correctly opening the file
½ marks for creating reader and writer objects
Full marks for correct code

SECTION E

34. Rahul created following table TRAVEL to store the travel details 1+1+2

TNO	TNAME	TDATE	KM	VTYPE	NOP
101	NANDA	25-11-2019	100	VOLVO BUS	32
103	SANAL	09-12-2019	210	ORDINARY BUS	45
105	RAMU	06-12-2019	300	VOLVO BUS	40
102	SOMU	25-12-2019	120	AC DELEX BUS	35
107	NEHA	05-11-2019	250	ORDINARY BUS	25
104	SNEHA	06-11-2019	300	VOLVO BUS	32
106	KIRAN	12-12-2019	125	VOLVO BUS	43

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) If 3 columns are added and 1rows are deleted from the table TRAVEL,

what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

(a) Insert the following record into the table

110	BIMAL	28-11-2022	200	VOLVO BUS	40

(b) Increase KM travelled by 10 if the VTYPE is VOLVO.

ANS:

a)(i)TNO (ii)degree-9 cardinality-6

iii)a.INSERT INTO TRAVEL VALUES(110,'BIMAL','28-11-2022',200,'VOLVOBUS',40)

b.UPDATE TRAVEL SET KM=KM+10 WHERE VTYPE='VOLVO BUS'

OR (Option for part iii only)

(iii) Write the statements to:

a. Delete the record of travel of traveler NANDA.
b. Add a column MILEAGE in the table with data type as integer

ANS:

a)DELETE FROM TRAVEL WHERE TNAME='NANDA'

b)ALTER TABLE TRAVEL ADD(MILEAGE int)

35. Biplab is a Python programmer. He has written a code and created a binary file STUDENT.DAT which has structure (admission_number, Name, Percentage). He has written an incomplete function *countrec()* in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%.As a Python expert, help him to complete the following code based on the requirement given above:

```
import _____#statement1
def countrec():
 _____#Statement2
 records=_____#Statement3
 count=0
 for record in records:
  if(_____):#Statement4
   count=count+1
   print("ID",record[0])
   print("NAME",record[1])
   print("PERCENTAGE",record[2])
 print("No of students with perentage above 75",count)
```

(i) Which module should be imported in the program? (Statement1)

(ii) Write the correct statement required to open a file named STUDENT.DAT. in binary mode (Statement2)

1

	(iii) Which statement should Biplab fill in Statement 3 to readthe data from the binary file, STUDENT.DATand in Statement 4 to check the percentage?	1
	ANS (i) pickle (ii)fp=open("STUDENT.DAT","rb") (iii)records=pickle.load(fp) if(record[2]>75)	2

CBSE Additional Practice Question Paper
Class: XII Session: 2023-24
Computer Science (083)
Marking Scheme

Q No.	Answer	Total Marks
1	a. per%marks	1
2	b. list.append(element)	1
3	b. lcomme T	1
4	b. One block of except statement cannot handle multiple exceptions	1
5	c. Statement 3	1
6	d. dump	1
7	d. dict_student.update(dict_marks)	1
8	b. mean()	1
9	c. 13.5	1
10	PPP – Point to Point Protocol VoIP - Voice Over Internet Protocol	1
11	b. LIKE operator	1
12	d. fetchone	1
13	b. r	1
14	a. file_object.seek(offset [, reference_point])	1
15	d. Interlinking of collection of webpages is called Internet.	1
16	c. TelNet	1
17	a. Both A and R are true and R is the correct explanation for A	1
18	c. A is True but R is False	1
19	Advantages: 1) A dedicated communication channel increases the quality of communication. 2) Suitable for long continuous communication. Disadvantages: 1) Resources are not utilized fully. 2) The time required to establish the physical link between the two stations is too long. *½ mark for each advantage and disadvantage* **OR** **Web browser** Purpose: Receives and displays web content.	2

	Function: Initiates requests to web servers, and receives and displays content for users. **Web server** Purpose: Delivers web content to clients. Function: Listens to incoming requests, processes them, and sends requested content to the client. **Name of Web browsers:** Google Chrome, Mozilla Firefox *1 mark for any one correct difference and 1/2 mark for each two correct examples*	
20	`num1, num2 = 10, 45` `while num1 % num2 == 0:` `____num1+= 20` `____num2+= 30` `else:` `    print('hello')` *½ mark for while* *½ mark for :* *½ mark for correct indentation (inside the block of while)* *½ mark for else*	2
21	`def dispBook(BOOKS):` `    for key in BOOKS:` `        if BOOKS[key][0] not in "AEIOUaeiou":` `            print(BOOKS[key].upper())` `BOOKS = {1:"Python",2:"Internet Fundamentals ",3:"Networking ",4:"Oracle sets",5:"Understanding HTML"}` `dispBook(BOOKS)` *½ mark for for loop* *1 mark for if condition* *½ mark for display in upper case* **OR** `def FindWord(STRING,SEARCH):` `    return (STRING . count (SEARCH) )` `str = input('Enter String : ')` `word = input('Enter word to search : ')` `print('The word', word, 'occurs', FindWord(str,word), 'times')` *½ mark for input* *½ mark for print statement* *1 mark for counting the word and returning the value*	2
22	9$14$19$5$ *½ mark for 9$* *½ mark for 14$* *½ mark for 19$* *½ mark for 5$*	2
23	i. del D['Mumbai'] *1 mark for correct answer*	2

	ii. print(S.split()) *1 mark for correct answer* **OR** my_str = "Computer Science" alternate_chars = my_str[::2] print(alternate_chars) *1.5 mark for logic of alternate characters* *½ mark for printing alternate characters*	
24	% (Percentage): • Matches any sequence of characters (including empty sequence). • Example: LIKE 'T%' matches all those strings starting with the letter 'T'. The string with just 1 character 'T' will also be considered. _ (Underscore): • Matches a single character. • Example: LIKE '_ _T' on the other hand will search for a three letter string, whose 3rd letter is 'T'. At first two places any two character can appear. *1 mark for one correct difference. 1/2 mark each for correct example of each.* **OR** DROP is a DDL command in SQL and can be used to remove tables (or database). Example: 'DROP TABLE STUDENT;' will remove the table STUDENT from the database. DELETE is a DML command used to remove or delete rows/records from a table. Example: 'DELETE FROM STUDENT WHERE PER < 33;' will remove all those records from the table STUDENT where the percentage is less than 33. *1 mark for one correct difference. 1/2 mark each for correct example of each.*	2
25	• COUNT(*) returns the count of all rows in the table, whereas COUNT() is used with Column_Name passed as an argument and counts the number of non-NULL values in a column that is given as an argument. Hence the result may differ. • The SQL command with COUNT(*) may have higher value as it count all rows in the table. *1 mark for suitable reason* *1 mark for mentioning correct command*	2
26	(a) CODE | BNAME | TYPE | MNO | MNAME | ISSUEDATE L102 | Easy Python | Programming | M101 | SNEH SINHA | 2022-10-13 F102 | Untold Story | Fiction | M103 | SARTHAK | 2021-02-23 C101 | Juman Ji | Thriller | M102 | SARA KHAN | 2022-06-12 *1 mark for correct answer*	3

(b)

(i)

NAME	PROJECT
Satyansh	P04
Ranjan	P01
Muneera	P01
Alex	P02
Akhtar	P04

½ mark for correct output

(ii)

NAME	SALARY
Akhtar	125000
Alex	75000

½ mark for correct output

(iii)

NAME	DOJ
Ranjan	2015-01-21
Akhtar	2015-02-01
Muneera	2018-08-19

½ mark for correct output

(iv)

Eid	Name	DOB	DOJ	Salary	Project
E01	Rannja	1990-07-12	2015-01-21	150000	P01
E03	Muneera	1996-11-15	2018-08-19	135000	P01

½ mark for correct output

27 (a) 3

(i)

FID	MIN(FEES)	MAX(FEES)
F01	12000	40000
F04	15000	17000
F03	8000	8000
F05	NULL	NULL

½ mark for correct answer

(ii)

AVG(SALARY)
29500

½ mark for correct answer

(iii)

FNAME	CNAME
Neha	Python
Neha	Computer Network

½ mark for correct answer

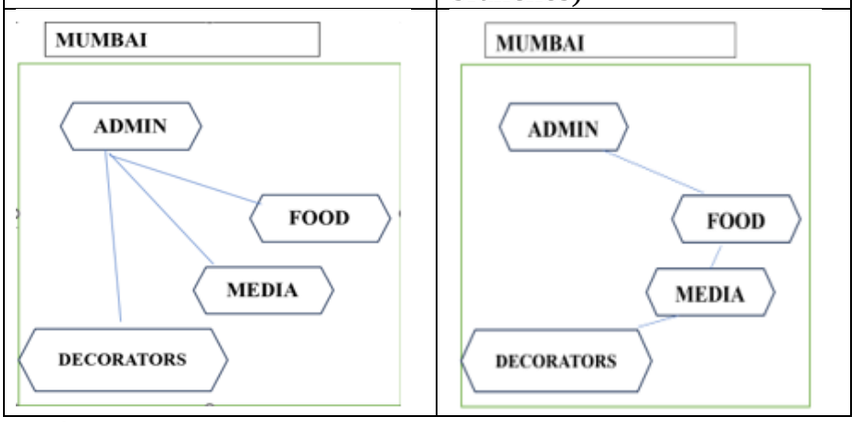
(iv)

FNAME	CNAME	FEES
Anishma	Grid Computing	40000
Neha	Python	17000

½ mark for correct answer

	(b) DESC or DESCRIBE command *1 mark for correct answer*	
28	``` def Count(): F=open('Gratitude.txt') T=F.readlines() X=1 for i in T: print('Line',X,':',i.count('e')) X=X+1 F.close() Count() ``` *½ mark for function header* *½ mark for opening and closing the file* *½ mark for reading lines* *½ mark for loop* *½ mark for count function/or any other alternate correct statement(s)* *½ mark for counter* **OR** ``` def Start_with_I(): F=open('Gratitude.txt') T=F.readlines() for i in T: if i[0] in 'Ii': print(i,end='') F.close() Start_with_I() ``` *½ mark for function header* *½ mark for opening and closing the file* *½ mark for reading lines* *½ mark for loop* *½ mark for if condition* *½ mark for print statment*	3
29	(i) Candidate Keys : ADMNO, ROLLNO *1 mark for correctly writing both names of candidate keys. OR ½ mark for specifying any one candidate key correctly.* (ii) Degree-8, Cardinality=4 *½ mark for degree and ½ mark for cardinality* (iii) Update result set SEM2=SEM2+.03*SEM2 where SEM2 between 70 and 100; *½ mark for writing Update result set part correctly* *½ mark for writing SEM2=SEM2+.03*SEM2 where SEM2 between 70 and 100; correctly.*	3
30	``` Stu_dict={5:(87,68,89), 10:(57,54,61), 12:(71,67,90), 14:(66,81,80), 18:(80,48,91)} ```	3

	`` Stu_Stk=[] def Push_elements(Stu_Stk, Stu_dict): for Stu_ID, marks in Stu_dict.items(): if marks[2]>=80: Stu_Stk.append(Stu_ID) def Pop_elements(Stu_Stk): while len(Stu_Stk)>0: print(Stu_Stk.pop()) if not Stu_Stk: print('Stack Empty') Push_elements(Stu_Stk, Stu_dict) Pop_elements(Stu_Stk) ``` *1.5 marks for correct implementation of Push_elements()* *1.5 marks for correct implementation of Pop_elements()*	
31	``` import csv def maxsalary(): f=open('record.csv', 'r') reader=csv.reader(f) skip_header = True max= 0 for row in reader: if skip_header: skip_header = False else: if(int(row[3])>max): max=int(row[3]) rec=row print('Row with the highest salary : ', rec) f.close() maxsalary() ``` *½ mark for importing module* *½ mark for function definition* *½ mark for opening and closing file* *½ for reader object* *½ for skipping first row (i.e. header)* *1 mark for calculating maximum salary* *½ mark for displaying record having maximum salary*	4
32	``` import pickle def expensiveProducts(): with open('INVENTORY.DAT', 'rb') as file: expensive_count = 0 while True: try: product_data = pickle.load(file) product_id, product_name, quantity, price = product_data if price > 1000: print("Product ID:", product_id) expensive_count += 1 except EOFError: break print("Total expensive products: ", expensive_count) expensiveProducts() ``` *½ mark for function definition*	4

	½ mark for opening and closing file *½ mark for correct try and except block* *1.5 mark identifying and displaying details of expensive products* *1 mark for displaying count of expensive products*	
33	i. The most appropriate location of the server inside the MUMBAI campus is ADMIN building due to the maximum number of computers in it. *½ mark for mentioning the branch and ½ mark for proper justification* ii. Cable Layout Star Topology (Based on server location) / Bus Topology (Based on minimum distance between branches)  *1 mark for drawing any valid cable layout* iii. Switch or Hub *1mark for suggesting the correct device* iv. c. Video Conferencing *1 mark for correct answer* v. (a) WAN (b) LAN *½ mark for mentioning WAN and ½ mark for mentioning LAN*	5
34	i.	5

	seek()	tell()
Purpose	Repositions the file pointer to a specific location within a file	Returns the current position of the file pointer
Syntax	seek(offset [,reference point])	tell()
Parameters	Requires specifying the offset and an optional reference point	Requires no parameters

2 marks for mentioning two correct differences.
OR
1 marks for mentioning only one correct differences.

ii.

```
import pickle
def  COPY_REC():
    In_file = open('FLIGHT.DAT','rb')
    out_file = open('RECORD.DAT','wb')
    try:
```

```
        while True:
            data = pickle.load(In_file)
            if data[3] == 'DELHI' and data[4] == 'MUMBAI':
                pickle.dump(data,out_file)
    except:
        In_file.close()
        out_file.close()

COPY_REC()
```

½ mark for function definion
½ mark for correctly opening and closing file
½ mark for correct try and except block
1.5 marks for writing required data in RECORD.DAT

OR

i.

Binary	CSV
1. pickle module to be used	1. csv module is used
2. Data is stored in binary format(0s and 1s) and is not in human readable form using any plain text editor.	2. Data is stored in tabular fashion and comma separated by default. The file can be read by any spreadsheet software or text editor.
3. File extension .dat/.pdf/.exe etc.	3. File extension .csv

2 marks for mentioning two correct differences.
OR
1 marks for mentioning only one correct differences.

ii.

```
import pickle

def findBook(price):
    with open('BOOK.DAT', 'rb') as file:
        while True:
            try:
                book_record = pickle.load(file)
                for item in book_record:
                    book_price = book_record[item][2]
                    if book_price >= price:
                        print(item, book_record[item])
            except EOFError:
                break

findBook(50)
```

½ mark for function definion
½ mark for correctly opening and closing file
½ mark for correct try and except block
1.5 marks for displying required records

35	(i)	5

SQL constraints are used to specify rules for the data in a table. Constraints are used to limit the type of data that can go into a table.
Constraints –
NOT NULL - Ensures that a column cannot have a NULL value
UNIQUE - Ensures that all values in a column are different
PRIMARY KEY - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table

½ mark for correct definition, ½ mark for correct example (anyone)

(ii)

a) password='tiger'
b) mycursor = con1.cursor()
c) query = 'delete from ITEM where Iname = "{}" '.format.(item_name)
d) con1.commit()

1 mark for each correct statement

OR

(i)

Candidate Key: A candidate key is a set of attributes in a relation that can uniquely identify each tuple (row). A relation can have multiple candidate keys, but only one of them is chosen as the primary key.
Alternate Key: An alternate key is a candidate key that is not selected as the primary key.

1 mark for any one correct difference.

(ii)

a) import mysql.connector as mysql
b) mycursor = con1.cursor()
c) query = 'SELECT * FROM ITEM where Price > {}'.format(5000)
d) data = mycursor.fetchall()

1 mark for each correct statement

Series ΣHEFG

SET-4

प्रश्न-पत्र कोड
Q.P. Code **91**

रोल नं.
Roll No.

1	3	6	2	4	3	5	3

Candidates must write the Q.P. Code on the title page of the answer-book.

COMPUTER SCIENCE

Time allowed : 3 hours *Maximum Marks : 70*

- Please check that this question paper contains **15** printed pages.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **35** questions.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions :

(i) *This question paper contains five sections,* ***Section A*** *to* ***E.***

(ii) ***All*** *questions are compulsory.*

(iii) ***Section A*** *have* ***18*** *questions carrying* ***1*** *mark each.*

(iv) ***Section B*** *has* ***7*** *Very Short Answer type questions carrying* ***2*** *marks each.*

(v) ***Section C*** *has* ***5*** *Short Answer type questions carrying* ***3*** *marks each.*

(vi) ***Section D*** *has* ***3*** *Long Answer type questions carrying* ***5*** *marks each.*

(vii) ***Section E*** *has* ***2*** *questions carrying* ***4*** *marks each.* ***One*** *internal choice is given in* ***Q. 34 and 35,*** *against Part* ***(iii)*** *only.*

(viii) *All programming questions are to be answered using Python Language only.*

SECTION – A

1. State True or False. 1
"Identifiers are names used to identify a variable, function in a program".

2. Which of the following is a valid keyword in Python ? 1
(a) false (b) return
(c) non_local (d) none

3. Given the following Tuple 1
```
Tup= (10, 20, 30, 50)
```
Which of the following statements will result in an error ?
(a) `print(Tup[0])` (b) `Tup.insert (2,3)`
(c) `print(Tup[1:2])` (d) `print(len(Tup))`

4. Consider the given expression :
```
5<10 and 12>7 or not 7>4
```
Which of the following will be the correct output, if the given expression is evaluated ? 1
(a) `True` (b) `False`
(c) `NONE` (d) `NULL`

5. Select the correct output of the code : 1
```
S= "Amrit Mahotsav @ 75"
A=S.partition (" ")
print (a)
```
(a) `('Amrit Mahotsav','@','75')`
(b) `['Amrit','Mahotsav','@','75']`
(c) `('Amrit', 'Mahotsav @ 75')`
(d) `('Amrit', '', 'Mahotsav @ 75')`

6. Which of the following mode keeps the file offset position at the end of the file ? 1

(a) `r+` (b) `r`

(c) `w` (d) `a`

7. Fill in the blank. 1

_____ function is used to arrange the elements of a list in ascending order.

(a) `sort()` (b) `arrange()`

(c) `ascending()` (d) `asort()`

8. Which of the following operators will return either True or False ? 1

(a) `+=` (b) `!=`

(c) `=` (d) `*=`

9. Which of the following statement(s) would give an error after executing the following code ? 1

```
Stud={"Murugan":100, "Mithu":95}  # Statement 1
print (Stud[95])                  # Statement 2
Stud ["Murugan"]=99               # Statement 3
print(Stud.pop())                 # Statement 4
print(Stud)                       # Statement 5
```

(a) Statement 2 (b) Statement 3

(c) Statement 4 (d) Statements 2 and 4

10. Fill in the blank. 1

_____ is a number of tuples in a relation.

(a) `Attribute` (b) `Degree`

(c) `Domain` (d) `Cardinality`

11. `The syntax of seek( ) is :` 1

`file_object.seek(offset[,reference_point])`

What is the default value of `reference_point` ?

(a) 0 (b) 1

(c) 2 (d) 3

12. Fill in the blank : 1

_____ clause is used with SELECT statement to display data in a sorted form with respect to a specified column.

(a) `WHERE` (b) `ORDER BY`

(c) `HAVING` (d) `DISTINCT`

13. Fill in the blank : 1

_____ is used for point-to-point communication or unicast communication such as radar and satellite.

(a) INFRARED WAVES (b) BLUETOOTH

(c) MICROWAVES (d) RADIOWAVES

14. What will the following expression be evaluated to in Python ? 1

```
print(4+3*5/3-5%2)
```

(a) 8.5 (b) 8.0

(c) 10.2 (d) 10.0

15. Which function returns the sum of all elements of a list ? 1

(a) count() (b) sum()

(c) total() (d) add()

16. fetchall() method fetches all rows in a result set and returns a : 1

(a) Tuple of lists (b) List of tuples

(c) List of strings (d) Tuple of strings

Q. 17 and 18 are ASSERTION (A) and REASONING (R) 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) :** To use a function from a particular module, we need to import the module. 1

Reason (R) : import statement can be written anywhere in the program, before using a function from that module.

18. **Assertion (A) :** A stack is a LIFO structure. 1

Reason (R) : Any new element pushed into the stack always gets positioned at the index after the last existing element in the stack.

SECTION – B

19. Atharva is a Python programmer working on a program to find and return the maximum value from the list. The code written below has syntactical errors. Rewrite the correct code and underline the corrections made. **2**

```
def max_num (L) :
    max=L(0)
    for a in L :
      if a > max
      max=a
    return max
```

20. (a) Differentiate between wired and wireless transmission. **2**

OR

(b) Differentiate between URL and domain name with the help of an appropriate example. **2**

21. (a) Given is a Python list declaration : **1**

```
Listofnames=["Aman","Ankit","Ashish","Rajan","Rajat"]
```

Write the output of :

```
print (Listofnames [-1:-4:-1])
```

(b) Consider the following tuple declaration : **1**

```
tup1=(10,20,30,(10,20,30),40)
```

Write the output of :

```
print(tupl.index(20))
```

22. Explain the concept of "Alternate Key" in a Relational Database Management System with an appropriate example. **2**

23. (a) Write the full forms of the following : **2**

(i) HTML

(ii) TCP

(b) What is the need of Protocols ?

24. (a) Write the output of the code given below : **2**

```
def short_sub (lst,n) :
    for i in range (0,n) :
        if len (lst)>4:
            lst [i]=lst [i]+lst[i]
        else:
            lst[i]=lst[i]
subject=['CS','HINDI','PHYSICS','CHEMISTRY','MATHS']
short_sub(subject,5)
print(subject)
```

OR

(b) Write the output of the code given below :

```
a =30
def call (x) :
      global a
      if a%2==0:
            x+=a
      else:
            x-=a
      return x
x=20
print(call(35),end="#")
print(call(40),end= "@")
```

25. (a) Differentiate between CHAR and VARCHAR data types in SQL with appropriate example. 2

OR

(b) Name any two DDL and any two DML commands. 2

SECTION – C

26. (a) Consider the following tables – LOAN and BORROWER : 1 + 2

Table : LOAN

LOAN_NO	B_NAME	AMOUNT
L-170	DELHI	3000
L-230	KANPUR	4000

Table : BORROWER

CUST_NAME	LOAN_NO
JOHN	L-171
KRISH	L-230
RAVYA	L-170

How many rows and columns will be there in the natural join of these two tables ?

(b) Write the output of the queries (i) to (iv) based on the table, WORKER given below :

TABLE: WORKER

W_ID	F_NAME	L_NAME	CITY	STATE
102	SAHIL	KHAN	KANPUR	UTTAR PRADESH
104	SAMEER	PARIKH	ROOP NAGAR	PUNJAB
105	MARY	JONES	DELHI	DELHI
106	MAHIR	SHARMA	SONIPAT	HARYANA
107	ATHARVA	BHARDWAJ	DELHI	DELHI
108	VEDA	SHARMA	KANPUR	UTTAR PRADESH

(i) `SELECT F_NAME, CITY FROM WORKER ORDER BY STATE DESC;`

(ii) `SELECT DISTINCT (CITY) FROM WORKER;`

(iii) `SELECT F_NAME, STATE FROM WORKER WHERE L_NAME LIKE '_HA%';`

(iv) `SELECT CITY,COUNT(*) FROM WORKER GROUP BY CITY;`

27. (a) Write the definition of a Python function named `LongLines( )` which reads the contents of a text file named `'LINES.TXT'` and displays those lines from the file which have at least 10 words in it. For example, if the content of `'LINES.TXT'` is as follows : 3

Once upon a time, there was a woodcutter

He lived in a little house in a beautiful, green wood.

One day, he was merrily chopping some wood.

He saw a little girl skipping through the woods, whistling happily.

The girl was followed by a big gray wolf.

Then the function should display output as :

He lived in a little house in a beautiful, green wood.

He saw a little girl skipping through the woods, whistling happily.

OR

(b) Write a function `count_Dwords()` in Python to count the words ending with a digit in a text file "Details.txt".

Example:

If the file content is as follows :

On seat2 VIP1 will sit and

On seat1 VVIP2 will be sitting

Output will be:

Number of words ending with a digit are 4

28. (a) Write the outputs of the SQL queries (i) to (iv) based on the relations COMPUTER and SALES given below : 2

Table : COMPUTER

PROD_ID	PROD_NAME	PRICE	COMPANY	TYPE
P001	MOUSE	200	LOGITECH	INPUT
P002	LASER PRINTER	4000	CANON	OUTPUT
P003	KEYBOARD	500	LOGITECH	INPUT
P004	JOYSTICK	1000	IBALL	INPUT
P005	SPEAKER	1200	CREATIVE	OUTPUT
P006	DESKJET PRINTER	4300	CANON	OUTPUT

Table : SALES

PROD_ID	QTY_SOLD	QUARTER
P002	4	1
P003	2	2
P001	3	2
P004	2	1

(i)
```
SELECT MIN(PRICE), MAX(PRICE) FROM COMPUTER;
```

(ii)
```
SELECT COMPANY, COUNT(*) FROM COMPUTER GROUP BY
COMPANY HAVING COUNT(COMPANY) > 1;
```

(iii)
```
SELECT PROD_NAME, QTY_SOLD FROM COMPUTER C, SALES
S WHERE C.PROD_ID=S.PROD_ID AND TYPE = 'INPUT';
```

(iv)
```
SELECT PROD_NAME, COMPANY, QUARTER FROM COMPUTER
C, SALES S WHERE C.PROD_ID=S. PROD_ID;
```

(b) Write the command to view all databases. 1

29. Write a function EOReplace() in Python, which accepts a list L of numbers. Thereafter, it increments all even numbers by 1 and decrements all odd numbers by 1. 3

Example :

If Sample Input data of the list is :

```
L=[10,20,30,40,35,55]
```

Output will be :

```
L=[11,21,31,41,34,54]
```

30. (a) A list contains following record of customer:

```
[Customer_name, Room Type]
```

Write the following user defined functions to perform given operations on the stack named `'Hotel'` :

(i) `Push_Cust()` – To Push customers' names of those customers who are staying in 'Delux' Room Type.

(ii) `Pop_Cust()` – To Pop the names of customers from the stack and display them. Also, display "Underflow" when there are no customers in the stack.

For example :

If the lists with customer details are as follows :

```
["Siddarth", "Delux"]
["Rahul", "Standard"]
["Jerry", "Delux"]
```

The stack should contain

```
Jerry
Siddharth
```

The output should be:

```
Jerry
Siddharth
Underflow
```

OR

(b) Write a function in Python, `Push (Vehicle)` where, Vehicle is a dictionary containing details of vehicles – `{Car_Name: Maker}`. The function should push the name of car manufactured by 'TATA' (including all the possible cases like Tata, TaTa, etc.) to the stack. 3

For example:

If the dictionary contains the following data:

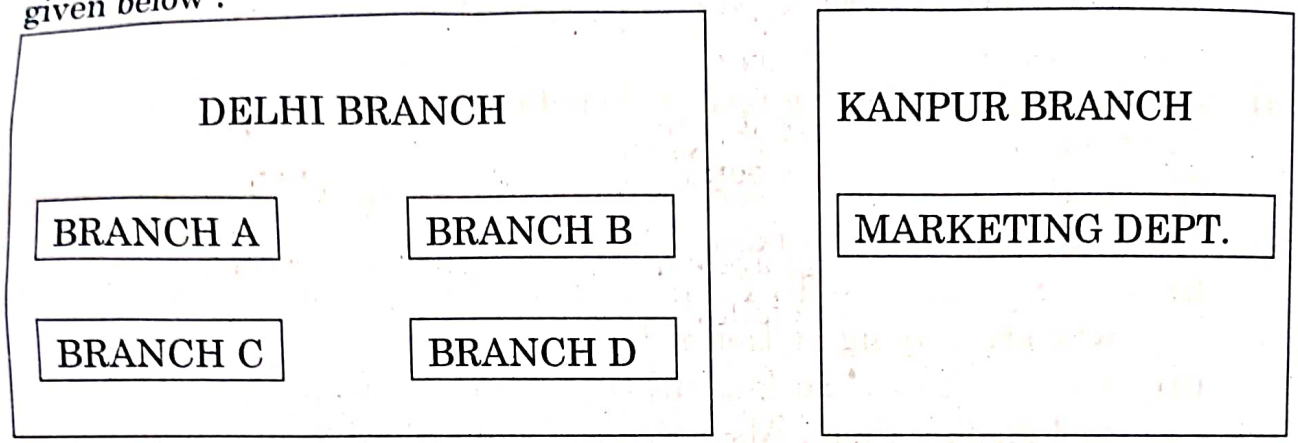
```
Vehicle={"Santro":"Hyundai","Nexon":"TATA","Safari":"Tata"}
```

The stack should contain

```
Safari
Nexon
```

SECTION – D

31. Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below :



Distance between various branches is as follows :

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches :

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

(i) Suggest the most suitable place to install the server for the Delhi branch with a suitable reason. 1

(ii) Suggest an ideal layout for connecting all these branches within Delhi. 1

(iii) Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches ? 1

(iv) Delhi firm is planning to connect to its Marketing department in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed ? Justify your answer. 1

(v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch. 1

32. (a) What possible output(s) are expected to be displayed on screen at the time of execution of the following program :

```
import random
M=[5,10,15,20,25,30]
for i in range(1,3):
    first=random.randint(2,5)- 1
    sec=random.randint(3,6)- 2
    third=random.randint(1,4)
    print(M[first],M[sec],M[third],sep="#")
```

(i)
```
10#25#15
20#25#25
```

(ii)
```
5#25#20
25#20#15
```

(iii)
```
30#20#20
20#25#25
```

(iv)
```
10#15#25#
15#20#10#
```

2

(b) The code given below deletes the record from the table employee which contains the following record structure :

`E_code` - String
`E_name` - String
`Sal` - Integer
`City` - String

Note the following to establish connectivity between Python and MySQL :

- Username is `root`
- Password is `root`
- The table exists in a MySQL database named `emp`.
- The details `(E_code,E_name,Sal,City)` are the attributes of the table.

Write the following statements to complete the code :

Statement 1 – to import the desired library.

Statement 2 – to execute the command that deletes the record with E_code as 'E101'.

Statement 3 – to delete the record permanently from the database.

```
import _____ as mysql      # Statement 1
def delete( ) :
    mydb=mysql.connect(host="localhost",user="root",
    passwd="root",database="emp")
    mycursor=mydb.cursor( )
    _____ # Statement 2
    _____ # Statement 3
    print ("Record deleted")
```

3

OR

(a) Predict the output of the code given below :

```
def makenew(mystr):
    newstr=""
    count=0
    for i in mystr:
        if count%2!=0:
            newstr=newstr+str(count)
        else :
            if i.lower():
                newstr=newstr+i.upper()
            else:
                newstr=newstr+i
        count+=1
    print(newstr)
makenew("No@1")
```

2

(b) The code given below reads the following records from the table `employee` and displays only those records who have employees coming from city 'Delhi':

`E_code` - String

`E_name` - String

`Sal` - Integer

`City` - String

Note the following to establish connectivity between Python and MySQL :

- Username is `root`
- Password is `root`
- The table exists in a MySQL database named `emp`.
- The details `(E_code,E_name,Sal,City)` are the attributes of the table.

Write the following statements to complete the code :

Statement 1 – to import the desired library.

Statement 2 – to execute the query that fetches records of the employees coming from city 'Delhi'.

Statement 3 – to read the complete data of the query (rows whose city is Delhi) into the object named `details`, from the table `employee` in the database. **3**

```
import _____ as mysql          # Statement 1
def display():
    mydb=mysql.connect(host="localhost",user="root",
    passwd="root",database="emp")
    mycursor=mydb.cursor()
    _____                      # Statement 2
    details = _____            # Statement 3
    for i in details:
        print (i)
```

33. (a) Write one difference between CSV and text files. 5

Write a program in Python that defines and calls the following user defined functions :

(i) `COURIER_ADD()`: It takes the values from the user and adds the details to a csv file `'courier.csv'`. Each record consists of a list with field elements as `cid`, `s_name`, `Source`, `destination` to store Courier ID, Sender name, Source and destination address respectively.

(ii) `COURIER_SEARCH()` : Takes the destination as the input and displays all the courier records going to that destination.

OR

(b) Why it is important to close a file before exiting ?

Write a program in Python that defines and calls the following user defined functions :

(i) Add_Book() : Takes the details of the books and adds them to a csv file 'Book.csv'. Each record consists of a list with field elements as `book_ID`, `B_name` and `pub` to store book ID, book name and publisher respectively. 5

(ii) Search_Book() : Takes publisher name as input and counts and displays number of books published by them.

SECTION – E

34. The school has asked their estate manager Mr. Rahul to maintain the data of all the labs in a table LAB. Rahul has created a table and entered data of 5 labs.

LABNO	LAB_NAME	INCHARGE	CAPACITY	FLOOR
L001	CHEMISTRY	Daisy	20	I
L002	BIOLOGY	Venky	20	II
L003	MATH	Preeti	15	I
L004	LANGUAGE	Daisy	36	III
L005	COMPUTER	Mary Kom	37	II

Based on the data given above answer the following questions :

(i) Identify the columns which can be considered as Candidate keys. 1

(ii) Write the degree and cardinality of the table. 1

(iii) Write the statements to :

(a) Insert a new row with appropriate data. 2

(b) Increase the capacity of all the labs by 10 students which are on 'I' Floor.

OR

(Option for part (iii) only)

(iii) Write the statements to : 2

(a) Add a constraint PRIMARY KEY to the column LABNO in the table.

(b) Delete the table LAB.

35. Shreyas is a programmer, who has recently been given a task to write a user defined function named `write_bin( )` to create a binary file called `Cust_file.dat` containing customer information – customer number (`c_no`), name (`c_name`), quantity (`qty`), price (`price`) and amount (`amt`) of each customer.

The function accepts customer number, name, quantity and price. Thereafter, it displays the message 'Quantity less than 10..... Cannot SAVE', if quantity entered is less than 10. Otherwise the function calculates amount as `price * quantity` and then writes the record in the form of a list into the binary file.

```
import pickle
def write_bin():
  bin_file=_______ #Statement 1
  while True:
    c_no=int(input("enter customer number"))
    c_name=input("enter customer name")
    qty=int(input("enter qty"))
    price=int(input("enter price"))
    if _______  #Statement 2
      print("Quantity less than 10..Cannot SAVE")
    else:
      amt=price * qty
      c_detail=[c_no,c_name,qty,price,amt]
      _______ #Statement 3
      ans=input("Do you wish to enter more records y/n")
      if ans.lower()=='n':
        _________ #Statement 4
    _____________ #Statement 5
_________________ #Statement 6
```

(i) Write the correct statement to open a file `'Cust_file.dat'` for writing the data of the customer. **1**

(ii) Which statement should Shreyas fill in Statement 2 to check whether quantity is less than 10. **1**

(iii) Which statement should Shreyas fill in Statement 3 to write data to the binary file and in Statement 4 to stop further processing if the user does not wish to enter more records. **2**

OR

(Option for part (iii) only)

(iii) What should Shreyas fill in Statement 5 to close the binary file named `Cust_file.dat` and in Statement 6 to call a function to write data in binary file ? **2**

Series HFGIE CBSE XII - Computer Science. 23/3/23

Experiment Name / No.: Code-91 (Set 4) Camlin Page No. Date / /

Pankaj Singh
PGT (CS), KV 1 Agra

SECTION-A 1M × 18Qs = 18M

1. True	7. A	13. C
2. B	8. B	14. B
3. B	9. D	15. B
4. A	10. D	16. B
5. D	11. A	17. A
6. D	12. B	18. A

SECTION-B 2m × 7Qs = 14M

A19)
```
def max_num(L):
    max = L[0]                  # Error 1
    for a in L:
        if a > max:             # Error 2
            max = a             # Error 3
    return max
```

A20) (a) Difference wired & wireless transmission 1M
Example: LAN → wifi 1M

OR

(b) http://www.cbse.nic.in/welcome.htm 1M

Example URL (Uniform Resource Locator)
cbse.nic.in → Domain Name
Difference in words 1M

Teacher's Signature:

A21) @ Aman, Ankit, Ashish, Rajan, Rajat
0 1 2 3 4
-5 -4 -3 -2 -1

print (Listofnames [-1 : -4 : -1])

1M

o/p Rajat
Rajan
Ashish

A22) (b) tupl = (10, 20, 30, (10, 20, 30), 40)
0 1 2 3 4

print (tupl. index (20))

o/p : 1

1M

A23) @ (i) HTML : HyperText Markup Language ½M
(ii) TCP : Transmission Control Protocol ½M

(b) Protocol : Rules & regulation of transfering data over internet. 1M

A24) o/p @ 2M

CSCS HINDIHINDI PHYSICSPHYSICS CHEMISTRYCHEMISTRY MATHSMATHS

OR (b) o/p 65#70@ 2M

A25) CHAR : Fixed length of date, like gender char(1) 1M

VARCHAR : Variable length of data 1M
like Name varchar(20)

OR

DDL : Create, Alter, Drop 1M

DML : Select, Insert, Update, Delete 1M

SECTION-C 5Q/s x 3M = 15M

A26) (a) Rows : 2 Columns : 4 1M

(b) i)

F_NAME	CITY
SAHIL	KANPUR
VEDA	KANPUR
SAMEER	ROOPNAGAR
MAHIR	SONIPAT
MARY	DELHI
ATHARVA	DELHI

ii)

DISTINCT (CITY)
KANPUR
ROOP NAGAR
DELHI
SONIPAT

iii)

F_NAME	STATE
SAHIL	UTTAR PRADESH
MAHIR	HARYANA
ATHARVA	DELHI
VEDA	UTTAR PRADESH

iv)

CITY	COUNT(*)
KANPUR	2
ROOPNAGAR	1
DELHI	2
SONIPAT	1

1/2M x 4

A27) (a) def LongLines():

```
    f= open('LINES.TXT')
    data = f.readline()
    while data:
        w = data.split()
        if len(w) > 10:
            print(data)
        data = f.readline()
    f.close()
```

3M

OR

(b) def count_Dwords():

```
    f= open('Details.txt')
    data = f.read()
    data = data.split()
    ctr =0
    for w in data:
        if w[-1].isdigit:
            ctr = ctr +1
    f.close()
    print('Number of words ending
        with a digit are', ctr)
```

3M

A28) O/P

½ M × 4

i)

MIN(PRICE)	MAX(PRICE)
200	4300

ii)

COMPANY	COUNT(*)
LOGITECH	2
CANON	2

iii)

PROD_NAME	QTY_SOLD
MOUSE	3
KEYBOARD	2
JOYSTICK	2

iv)

PROD_NAME	COMPANY	QUARTER
MOUSE	LOGITECH	2
LASER PRINTER	CANON	1
KEYBOARD	LOGITECH	2
JOYSTICK	IBALL	1

(b) SHOW DATABASES; 1 M

A29) 3M

```
def EOReplace(L):
    for i in range(len(L)):
        N = L[i]
        if N%2==0:
            L[i] += 1
        else:
            L[i] -= 1

# main-code
Lst = [10, 20, 30, 40, 35, 55]
print('OUTPUT')
EOReplace(Lst)
print(Lst)
```

A30) 3M

```
def Push_Cost(L):
    for data in L:
        if data[1]=='Delux':
            Hotel.append(data[0])

def Pop_Cost():
    if len(Hotel)==0
        print('Underflow')
    else:
        print(Hotel.pop())

# main-code
L = [['Siddarth','Delux'],['Rahul','Standard'],['Jay','Delux']]
Hotel = []
Push_Cost(L)
Pop_Cost(Hotel)
```

OR Part (b) 3M

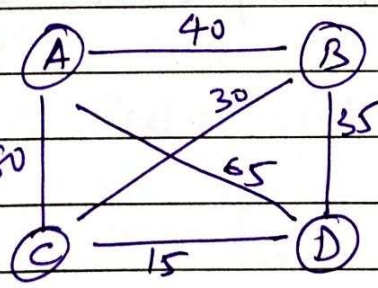
```
def Push(Vehicle):
    for K,V in Vehicle.items():
        if V.upper() == 'TATA':
            Stk.append(K)

# main-code
Vehicle = {'Santro': 'Hyundai', 'Nexon': 'TATA', 'Safari': 'Tata'}
Stk = []
Push(Vehicle)
print(Stk)
```

SECTION-D 5M x 3Qs = 15M

A31) i) Place – Branch D, as it has max no of Computers

ii)

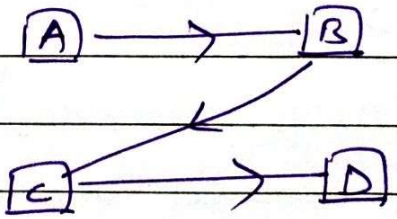


A – B – D – C = 40 + 35 + 15 = 90

A – C – D – B = 80 + 15 + 35 = 130

A – B – C – D = 40 + 30 + 15 = 85

So shortest distance 85



iii) Switch/Hub must be placed in each Branch

iv) WAN with justification

v) FTP : File Transfer Protocol

M = [5, 10, 15, 20, 25, 30]
0 1 2 3 4 5

A32) (a) i → 1, 2 means 2 times. 2M

first	Sec	third
(2,3,4,5) -1	(3,4,5,6) -2	1, 2, 3, 4

Value ⇒ 1,2,3,4 1,2,3,4

Start & End

i) 10#25#15 ✓
20#25#25

ii) 5#25#20
25#20#15

iii) 30#20#20 Index out of range
20#25#25

iv) 10#15#25#
15#20#10# X

print(M[first], M[Sec], M[third], Sep='#')

So the correct Answer (i)

3M

(b) S1 : mysql.connector

S2: mysql.execute("delete from emp where E_Code='E01'")

S3: mydb.commit()

OR part

(a) N1@3 2M

(b) S1: mysql.connector 3M

S2: mysql.execute("Select * from Emp where City='Delhi'")

S3 = mycursor.fetchall()

riment Name / No.: _____ | Camlin | Page No. | Date / /

A33) (a) CSV : Comma Seperated Value, only data 1M

Text file: Contain all readable characters.
Used to store all kind of valid text.

```
import csv as c                                        ½M
def COURIER_ADD():
    filename = 'courier.csv'                           1½M
    cid = input('Enter Courier ID')
    s_name = input('Enter Sender Name')
    Source = input('Enter Source')
    destination = input('Enter Destination')
    L = [cid, s_name, Source, destination]
    with open(filename, 'w') as csvfile:
        csvwrite = c.writer(csvfile)
        csvwrite.writerow(L)
def COURIER_SEARCH():                                  1½M
    dest = input('Enter destination to Search')
    with open('Courier.csv') as csvfile:
        csv_read = c.reader(csvfile, delimeter=',')
        for data in csv_read:
            if data[3] == dest:
                print(data)

# main-code
COURIER_ADD()
COURIER_SEARCH()                                       ½M
```

Teacher's Signature: _____

OR Part

(b) It is important to close a file before exiting so that data may be preserved & other application can use that file. Otherwise that file will not be accessible to other appl.

Add_Book() & search_Book() as passing parameter

SECTION – E 2 Q/s * 4M = 8M

A34)

i) CK : LABNO, LAB_NAME 1M

ii) D = 5 C = 5 ½M x 2

iii) (a) insert into LAB 1M
values ('L006', 'CS LAB', 'Himanshu', 50, 'I')

(b) update LAB 1M
set capacity = capacity + 10 where FLOOR = 'I';

OR

(a) Alter table LAB 1M
add primary key (LABNO)

(b) delete from LAB; 1M

A35)

i) bin_file = open('custfile.dat', 'wb') | S_1 1M

ii) qty < 10 : | S_2 1M

iii) ~~bin_file~~ pickle.dump(c_details, bin_file) | S_3 1M
break | S_4 1M

OR Part

S_5 → bin_file.close() 1M

S_6 → write_bin() 1M

CBSE Additional Practice Question Paper
Class: XII Session: 2023-24
Computer Science (083)

Time allowed: 3 Hours **Maximum Marks: 70**

General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

Q No.	Questions Section-A (18 Marks)	Marks
1	Which of the following is an invalid identifier to be used in Python? **a.** per%marks **b.** _for **c.** While **d.** true	1
2	What is the correct way to add an element to the end of a list in Python? **a.** list.add(element) **b.** list.append(element) **c.** list.insert(element) **d.** list.extend(element)	1
3	What will be the output of `print("Welcome To My Blog"[2:6] + "Welcome To My Blog"[5:9])` **a.** Lcomme **b.** lcomme T **c.** lcomme To **d.** lcomme	1
4	Which of the following statements is false? **a.** A try-except block can have more than one except statement **b.** One block of except statement cannot handle multiple exceptions **c.** The finally block is always executed **d.** When 1 == "1" is executed, no exception is raised	1
5	Which of the following statement(s) would give an error during the execution of the following code? R = {'pno':52,'pname':'Virat', 'expert':['Badminton','Tennis'] ,'score':(77,44)} print(R) #Statement 1	1

	R['expert'][0]='Cricket' #Statement 2 R['score'][0]=50 #Statement 3 R['pno']=50 #Statement 4 **a.** Statement 1 **b.** Statement 2 **c.** Statement 3 **d.** Statement 4	
6	Which pickle module method is used to write a Python object to a binary file? **a.** save() **b.** serialize() **c.** store() **d.** dump()	1
7	Given the following dictionaries `dict_student = {"rno" : "53", "name" : 'Rajveer Singh'}` `dict_marks = {"Accts" : 87, "English" : 65}` Which statement will append the contents of dict_marks in dict_student? **a.** dict_student + dict_marks **b.** dict_student.add(dict_marks) **c.** dict_student.merge(dict_marks) **d.** dict_student.update(dict_marks)	1
8	Which of the following is not a component of the math module in Python? **a.** ceil() **b.** mean() **c.** fabs() **d.** pi	1
9	What will be the output of the following code? `L=["One , Two", "Three", "Four"]` `print(len(L)/2*len(L[0]))` **a.** 6.5 **b.** 13 **c.** 13.5 **d.** 6.0	1
10	Expand the following terms: (i) PPP (ii) VoIP	1
11	Which SQL operator performs pattern matching? **a.** BETWEEN operator **b.** LIKE operator **c.** EXISTS operator **d.** =	1

12	Which Python function is used for displaying only one result set from SQL table in a database? **a.** fetch1() **b.** fetchno() **c.** fetchall() **d.** fetchone()	1
13	Which of the following file opening mode in Python, generates an error if the file does not exist? **a.** a **b.** r **c.** w **d.** w+	1
14	The correct syntax of seek() is: **a.** file_object.seek(offset [, reference_point]) **b.** seek(offset [, reference_point]) **c.** seek(offset, file_object) **d.** seek.file_object(offset)	1
15	Which of the following statements is false? **a.** SMTP and POP protocols are used in email communication. **b.** URL of a page is not always the same as its domain name. **c.** HTTPS is safer than HTTP. **d.** Interlinking of collection of webpages is called Internet.	1
16	Fill in the blank: _____ protocol provides access to services hosted on a remote computer. **a.** FTP **b.** PPP **c.** Telnet **d.** SMTP	1
	Q17 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):** For changes made to a variable defined within a function to be visible outside the function, it should be declared as global. **Reasoning (R):** Variables defined within a function are local to that function by default, unless explicitly specified with the global keyword.	1
18	**Assertion (A):** A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module.	1

	Reasoning (A): Binary files are just like normal text files and can be read using a text editor like Notepad.	
Q No.	**Questions** **Section-B (14 Marks)**	**Marks**
19	Write two advantages and two disadvantages of circuit switching. **OR** Differentiate between Web server and web browser. Write the names of any two web browsers.	2
20	Rewrite the following code in Python after removing all the syntax errors. Underline each correction done in the code. `num1, num2 = 10, 45` `While num1 % num2 == 0` `num1+= 20` `num2+= 30` `Else:` `    print('hello')`	2
21	Write a function `dispBook(BOOKS)` in Python, that takes a dictionary `BOOKS` as an argument and displays the names in uppercase of those books whose name starts with a consonant. For example, Consider the following dictionary `BOOKS = {1:"Python", 2:"Internet Fundamentals ", 3:"Networking ", 4:"Oracle sets", 5:"Understanding HTML"}` The output should be: `PYTHON` `NETWORKING` **OR** Write a Python Program containing a function `FindWord(STRING, SEARCH)`, that accepts two arguments : `STRING` and `SEARCH`, and prints the count of occurrence of `SEARCH` in `STRING`. Write appropriate statements to call the function. For example, if `STRING` = "Learning history helps to know about history with interest in history" and `SEARCH` = 'history', the function should display `The word history occurs 3 times.`	2
22	What will be the output of the following code? `L = [5,10,15,1]` `G = 4` `def Change(X):` `    global G` `    N=len(X)` `    for i in range(N):` `        X[i] += G` `Change(L)` `for i in L:` `    print(i,end='$')`	2

23 — 2

Write a suitable Python statement for each of the following tasks using built-in functions/methods only:

i To delete an element Mumbai:50 from Dictionary D.

ii To display words in a string S in the form of a list

OR

Write a Python Program to display alternate characters of a string `my_str`.

For example, if `my_str` = "Computer Science"

The output should be `Cmue cec`

24 — 2

Differentiate between % (percentage) and _(underscore) characters used with the LIKE operator in SQL with appropriate examples.

OR

Differentiate between DROP and DELETE commands in SQL with appropriate examples.

25 — 2

Consider the following two commands with reference to a table, named `Employee` having a column named *`Department`*:

(a) `Select count(Department) from Employee;`

(b) `Select count(*) from Employee;`

If these two commands are producing different results,

(i) What may be the possible reason?

(ii) Which command (a) or (b) might be giving a higher value?

Q No	**Questions** **Section-C (15 Marks)**	**Marks**

26 — 3

(a) Consider the table, `BOOK` and `MEMBER` given below:

`TABLE : BOOK`

CODE	BNAME	TYPE
F101	The priest	Fiction
L102	Easy Python	Programming
C101	Juman Ji	Thriller
F102	Untold Story	Fiction
C102	War Stories	Comic

`Table: MEMBER`

MNO	MNAME	CODE	ISSUEDATE
M101	SNEH SINHA	L102	2022-10-13
M103	SARTHAK	F102	2021-02-23
M102	SARA KHAN	C101	2022-06-12

What will be the output of the following statement?

```
SELECT * FROM BOOK NATURAL JOIN MEMBER;
```

(b) Write the output of the queries (i) to (iv) based on the table

`Table: Employee`

EID	Name	DOB	DOJ	Salary	Project
E01	Ranjan	1990-07-12	2015-01-21	150000	P01
E02	Akhtar	1992-06-21	2015-02-01	125000	P04
E03	Muneera	1996-11-15	2018-08-19	135000	P01
E04	Alex	1991-10-25	2018-10-19	75000	P02
E05	Satyansh	1993-12-16	2018-10-19	85000	P04

i
```
SELECT NAME, PROJECT FROM EMPLOYEE ORDER BY NAME DESC;
```
ii
```
SELECT NAME, SALARY FROM EMPLOYEE WHERE NAME LIKE 'A%';
```
iii
```
SELECT NAME, DOJ FROM EMPLOYEE WHERE SALARY BETWEEN
100000 AND 200000;
```
iv
```
SELECT * FROM EMPLOYEE WHERE PROJECT = 'P01';
```

27 (a) Consider the following tables – FACULTY and COURSES : 3

Table: FACULTY

FID	FNAME	LNAME	JOINDATE	SALARY
F01	Anishma	Garg	2000-12-14	32000
F03	Bhumi	Goel	2001-08-10	15000
F04	Neha	Verma	2000-05-17	27000
F05	Meenu	Sharma	2006-07-11	30000

Table: COURSES

C_ID	FID	CNAME	FEES
C11	F01	Grid Computing	40000
C12	F04	Python	17000
C13	F03	C++	8000
C14	F04	Computer Network	15000
C15	F01	HTML	12000
C16	F05	Data Science	NULL

What will be the output of the following statement?

i
```
SELECT FID, MIN(FEES), MAX(FEES) FROM COURSES GROUP BY
FID;
```
ii
```
SELECT AVG(SALARY) FROM FACULTY WHERE FNAME LIKE '%a';
```
iii
```
SELECT FNAME, CNAME FROM FACULTY F, COURSES C WHERE
F.FID=C.FID AND COURSES.FID='F04';
```
iv
```
SELECT FNAME, CNAME , FEES FROM FACULTY F , COURSES C
WHERE F.FID = C.FID AND FEE>15000;
```

(b) Write the name of the command to display the structure of a table in a database.

28 Write a function COUNT*()* in Python to read from a text file 'Gratitude.txt' and display the count of the letter 'e' in each line 3

Example: If the file content is as follows:

```
Gratitude is a humble heart's radiant glow,
A timeless gift that nurtures and bestows.
It's the appreciation for the love we're shown,
In moments big and small, it's truly known.
```

The COUNT() function should display the output as:

```
Line 1 : 3
Line 2 : 4
Line 3 : 6
Line 4 : 1
```

OR

Write a function Start_with_I() in Python, which should read a text file 'Gratitude.txt' and then display lines starting with 'I'.

Example: If the file content is as follows:

```
Gratitude is a humble heart's radiant glow,
A timeless gift that nurtures and bestows.
It's the appreciation for the love we're shown,
In moments big and small, it's truly known.
```

Then the output should be

```
It's the appreciation for the love we're shown,
In moments big and small, it's truly known.
```

29 (3)

Navdeep creates a table `RESULT` with a set of records to maintain the marks secured by students in Sem1, Sem2, Sem3, and their divisions. After the creation of the table, he entered data of 7 students in the table.

ADNO	ROLLNO	SNAME	SEM1	SEM2	DIVISION
123	101	KARAN	366	410	I
245	102	NAMAN	300	350	I
128	103	ISHA	400	410	I
129	104	RENU	350	357	I
234	105	ARPIT	100	75	IV
187	106	SABINA	100	205	II
181	107	NEELAM	470	450	I

Based on the data given above answer the following questions:

i Identify the columns which can be considered as candidate keys?

ii If 2 more columns are added and 3 rows are deleted from the table result, what will be the new degree and cardinality of the above table?

iii Write a statement to increase the SEM2 marks by 3% for the students securing marks between 70 to 100.

30 (3)

Given a Dictionary `Stu_dict` containing marks of students for three test-series in the form `Stu_ID`*:(TS1, TS2, TS3)* as key-value pairs.
Write a Python program with the following user-defined functions to perform the specified operations on a stack named `Stu_Stk`

(i) `Push_elements(Stu_Stk, Stu_dict)` : It allows pushing IDs of those students, from the dictionary `Stu_dict` into the stack `Stu_Stk`, who have scored more than or equal to 80 marks in the TS3 Test.
(ii) `Pop_elements(Stu_Stk):` It removes all elements present inside the stack in LIFO order and prints them. Also, the function displays 'Stack Empty' when there are no elements in the stack.
Call both functions to execute queries.

For example:
If the dictionary `Stu_dict` contains the following data:

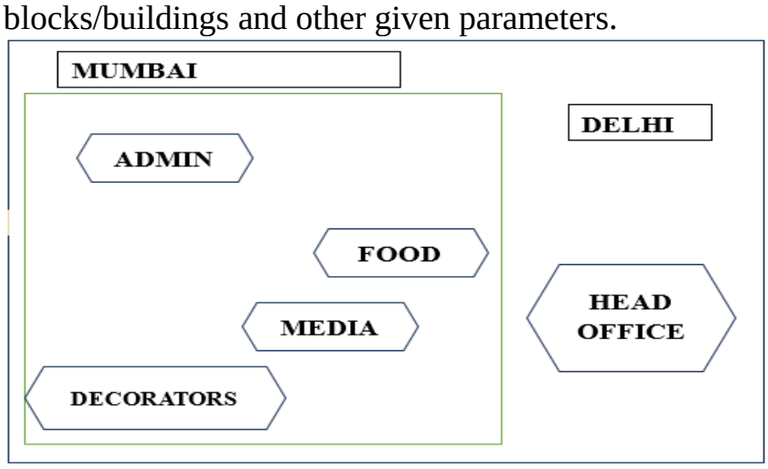
```
Stu_dict ={5:(87,68,89), 10:(57,54,61), 12:(71,67,90), 14:(66,81,80), 18:(80,48,91)}
```

After executing `Push_elements()`, `Stk_ID` should contain [5,12,14,18]

After executing `Pop_elements()`, The output should be:

```
18
14
12
5
Stack Empty
```

<table>
<tr><th>Q No.</th><th>Questions
Section-D (8 Marks)</th><th>Marks</th></tr>
<tr><td>31</td><td>Create a function <code>maxsalary()</code> in Python to read all the records from an already existing file <code>record.csv</code> which stores the records of various employees working in a department. Data is stored under various fields as shown below:
<table>
<tr><th>E_code</th><th>E_name</th><th>Scale</th><th>Salary</th></tr>
<tr><td>A01</td><td>Bijesh Mehra</td><td>S4</td><td>65400</td></tr>
<tr><td>B02</td><td>Vikram Goel</td><td>S3</td><td>60000</td></tr>
<tr><td>C09</td><td>Suraj Mehta</td><td>S2</td><td>45300</td></tr>
<tr><td>……</td><td>……</td><td>……</td><td>……</td></tr>
</table>
Function should display the row where the salary is maximum.
Note: Assume that all employees have distinct salary.</td><td>4</td></tr>
<tr><td>32</td><td>Consider a binary file <code>'INVENTORY.DAT'</code> that stores information about products using tuple with the structure <code>(ProductID, ProductName, Quantity, Price).</code> Write a Python function <code>expensiveProducts()</code> to read the contents of <code>'INVENTORY.DAT'</code> and display details of products with a price higher than Rs. 1000. Additionally, calculate and display the total count of such expensive products.

For example: If the file stores the following data in binary format
(1, 'ABC', 100, 5000)
(2, 'DEF', 250, 1000)
(3, 'GHI', 300, 2000)
then the function should display
<code>Product ID: 1</code>
<code>Product ID: 3</code>
<code>Total expensive products: 2</code></td><td>4</td></tr>
<tr><th>Q No.</th><th>Questions
Section-E (15 Marks)</th><th>Marks</th></tr>
<tr><td>33</td><td>Fun Media Services Ltd is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, DECORATORS, FOOD, and MEDIA.
You as a network expert need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (i) to (v), keeping in mind the distances between various blocks/buildings and other given parameters.
 
</td><td>5</td></tr>
</table>

Shortest distance between various buildings:

FROM – TO	DISTANCE
ADMIN TO DECORATORS	90 meters
ADMIN TO MEDIA	75 meters
ADMIN TO FOOD	50 meters
DECORATORS TO FOOD	65 meters
DECORATORS TO MEDIA	50 meters
FOOD TO MEDIA	45 meters
DELHI Head Office to MUMBAI Campus	1475 KM

The number of computers at various buildings is as follows:

BUILDING	NUMBER OF COMPUTERS
ADMIN	110
DECORATORS	75
MEDIA	12
FOOD	20

i. Suggest the most appropriate location of the server inside the MUMBAI campus (out of the 4 buildings). Justify your answer.
ii. Draw the cable layout to efficiently connect various buildings within the MUMBAI campus.
iii. Which hardware device will you suggest to connect all the computers within each building?
iv. Which of the following will you suggest to establish online face-to-face communication between the people in the Admin Office of the MUMBAI campus and the DELHI Head Office?
a. Cable TV
b. Email
c. Video Conferencing
d. Text Chat
v. What type of network (out of PAN, LAN, MAN, WAN) will be set up in each of the following cases?
a. The Mumbai campus gets connected with the Head Quarter in Delhi
b. The computers connected in the MUMBAI campus

34

i. Mention any two differences between seek() and tell(). 2+3=5
ii. Consider a file `FLIGHT.DAT` containing multiple records. The structure of each record is as shown below:
`[Fno, FName, Fare, Source, Destination]`
Write a function `COPY_REC()` in Python that copies all those records from FLIGHT.DAT where the source is `DELHI` and the destination is `MUMBAI`, into a new file `RECORD.DAT`

OR

i. Mention any two differences between binary files and csv files?
ii. Consider a Binary file `BOOK.DAT` containing a dictionary having multiple elements. Each element is in the form `BNO:[BNAME,BTYPE,PRICE]` as key:value pair
where
`BNO` – Book Number
`BNAME` – Book Name
`BTYPE` - Book Type
`PRICE` – Book price

	Write a user-defined function, `findBook(price)`, that accepts price as parameter and displays all those records from the binary file `BOOK.DAT` which has a book price more than or equal to the price value passed as a parameter.	
35	i. Define the term constraint with respect to RDBMS. Give a suitable example. ii. Sameera maintains a database named `STORE` which contains a table named `ITEM` with the structure given below: • `Ino`(Item number)- integer • `Iname`(Item Name) – string • `Price` (Item Price) – float • `Discount` (Discount) – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost Help her to remove the record from the table ITEM for a particular value of item name input by the user. `import mysql.connector as mysql` `con1= mysql.connect(host='localhost', user='root', password= '__', database='STORE')  #Statement-1` `mycursor = ________  #Statement-2` `item_name = input("Enter the Item name to remove the record : ")` `query = _____  #Statement-3` `mycursor.execute(query)` `con1.____  #Statement-4` `print('Data Deleted successfully')` `con1.close()` With reference to the above code, answer the following questions a) Complete statement 1 to establish the connection with the database. b) Write statement 2 to create the cursor object. c) Complete statement 3 to remove the record from the table ITEM based on the item name entered by the user d) Complete statement 4 to save the changes in the table. **OR** i. Write one difference between the alternate key and the candidate key. ii. A table named `ITEM` is created in a database `STORE`. The table contains multiple columns whose details are as shown below: • `Ino`(Item number)- integer • `Iname`(Item Name) – string • `Price` (Item Price) – float • `Discount` (Discount) – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost However, the table is to be interfaced with Python to perform certain tasks. The incomplete code is given below:	5

```
______  #Line 1
con1= mysql.connect(host='localhost', user = 'root', password =
'tiger', database='STORE')
mycursor = con1.____     #Line 2
query = 'SELECT * FROM ITEM where Price > {}'.format(___) #Line3
mycursor.execute(query)
data = mycursor.___  #Line 4
for rec in data:
      print(rec)
con1.close()
```

i. Complete line 1 to import the appropriate module.

ii. Complete Line 2 to create the cursor object

iii. Complete the query given in Line 3 to display details of all such items from the table ITEMS whose price is more than 5000.

iv. Complete Line 4 to extract all the records.

PB23CS01

KENDRIYA VIDYALAYA SANGATHAN ERNAKULAM REGION
PRE-BOARD EXAMINATION 2023-24
COMPUTER SCIENCE (083)

Time allowed: 3 Hours Maximum Marks: 70

General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

Q.NO	QUESTION	MARKS
	SECTION - A	
1	Which of the following is a keyword in Python? a) true b) For c) pre-board d) False	1
2	What will be the output for the following Python statement? print(20//3*2+(35//7.0)) a) 17.0 b) 17 c) 8.5 d) 8	1
3	In MYSQL database, if a table, BOOK has degree 8 and cardinality 7, and another table, SALE has degree 4 and cardinality 7, what will be the degree and cardinality of the Cartesian product of BOOK and SALE ? a) 32 , 49 b) 12, 49 c) 12 ,14 d) 32,14	1
4	What is " C " stands in TCP/IP ? a) Common b) Centre c)Control d) Coordinate	1
5	What is printed by the following statements? ANIMAL={"dog":10,"tiger":5,"elephant":15,"Cow":3} print("Tiger" not in ANIMAL) a) True b)False c)Error d) None	1
6	Consider the following statements and choose the correct output from the given options : EXAM="COMPUTER SCIENCE" print(EXAM[:12:-2]) a) EN b) CI c)SCIENCE d) ENCE	1
7	What will be the output of the following code ? Tuple1=(10,)	1

	Tuple2=Tuple1*2 print(Tuple2) a) 20 b) (20,) c) (10,10) d) Error	
8	Fill in the blanks: The SQL keyword ---------- is used in SQL expression to select records based on patterns	1
9	What possible outcome will be produced when the following code is executed? import random value=random.randint(0,3) fruit=["APPLE","ORANGE","MANGO","GRAPE"] for i in range(value): print(fruit[i],end='##') print() a) APPLE## b) APPLE# ORANGE## c) APPLE## ORANGE## d) ORANGE## MANGO## APPLE##	1
10	Select the network device from the following, which connects, networks with different protocols a) Bridge b)Gateway c)Hub d) Router	1
11	State whether the following statement is TRUE or FALSE : The value of the expression 4/3*(2-1) and 4/(3*(2-1)) is the same	1
12	In the relational models , cardinality actually refers to ---------- a) Number of tuples b) Number of attributes c) Number of tables d) Number of constraints	1
13	Data structure STACK is also known as ---------- list a)First In First Out b) First In Last Out c)Last In First Out d) Last In Last Out	1
14	Which function is used to write a list of strings in a file? a) writeline( ) b) writelines( ) c) write() d) writeall( )	1
15	Which of the following is NOT a guided communication medium? a) Twisted pair cable b) Microwave c) Coaxial cable d) Optical fibre	1
16	Which of the following function header is correct? a) def fun(a=1,b): b) def fun(a=1,b,c=2): c) def fun(a=1,b=1,c=2): d) def fun(a=1,b=1,c=2,d):	1
	Q17 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):** In SQL, the aggregate function avg() calculates the average value on a set of values and produces a single result. **Reason (R):** The aggregate functions are used to perform some fundamental arithmetic tasks such as min(), max(), sum() etc	1
18	**Assertion(A):** Python overwrites an existing file or creates a non-existing file when we open a file with 'w' mode. **Reason(R):** a+ mode is used only for writing operations	1
	SECTION - B	
19	i) Expand the following **:** a) SMTP b) VoIP ii) Give one disadvantage of Star topology **OR** i) What is a web browser ? ii) Define the term MAC Address	1+1=2
20	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . 30 = num for k in range(0,num) IF k%4==0 : print(k*4) Else: print(k+3)	2
21	Write a function letter_count(lst) that takes a list of string and returns a dictionary where the keys are the letters from lst and the values are the number of times that letter appears in the lst. For example: if the passed list, lst is : lst=list("apple") Then it should return a dictionary as {'a':1,'p':2,'l':1,'e':1} **OR** Write a function max_length( ) ,that takes a list of string as argument and display the longest string from the list.	2
22	Predict the output of the following code: lst=[2,4,6,8,10] for i in range(1,5): lst[i-1]=lst[i] for i in range(0,5): print(lst[i],end=' ')	2
23	Consider the following list of elements and write Python statement to print the output of each question. elements=['apple',200,300,'red','blue','grapes'] i) print(elements[3:5]) ii) print(elements[::-1])	2

	OR Consider the following list exam and write Python statement for the following questions: **exam=['english','physics','chemistry','cs','biology']** i) To insert subject "maths" as last element ii) To display the list in reverse alphabetical order	
24	Satheesh has created a database "school" and table "student". Now he wants to view all the databases present in his laptop. Help him to write SQL command for that , also to view the structure of the table he created. **OR** Meera got confused with DDL and DML commands. Help her to select only DML command from the given list of command. UPDATE , DROP TABLE, SELECT , CREATE TABLE , INSERT INTO, DELETE , USE	2
25	Predict the output for the following Python snippet def calc(p,q=3): ans=1 for x in range(q): ans=ans*p return ans power=calc(3) print(power,'9') power=calc(3,2) print(power,'27')	2
	SECTION C	
26	Predict the output of the Python code given below: def calculate(str): text='' x=range(len(str)-1) for i in x: if str[i].isupper(): text+=str[i] elif str[i].islower(): text+=str[i+1] else: text+='@' return text start='Pre-board Exam' final=calculate(start) print(final)	3

27 | Consider the following table **DOCTOR** given below and write the output of the SQL Queries that follows : | 3

D_ID	D_NAME	D_DEPT	GENDER	EXPERIENCE
101	JOSEPH	ENT	MALE	10
104	GUPTA	MEDICINE	MALE	12
106	SUMAN	ORTHO	FEMALE	7
111	HANEEF	ENT	MALE	12
123	DEEPTI	CARDIOLOGY	FEMALE	6
132	VEENA	SKIN	FEMALE	12

i) SELECT D_NAME FROM DOCTOR WHERE GENDER=MALE AND EXPERIENCE=12 ;
ii) SELECT DISTINCT(D_DEPT) FROM DOCTOR ;
iii) SELECT D_NAME , EXPERIENCE FROM DOCTOR ORDER BY EXPERIENCE ;

28 | Write a function in Python to count the number of lines in a text fie 'EXAM.txt' which start with an alphabet 'T' . | 3
OR
Write a function in Python that count the number of "can" words present in a text file "DETAILS.txt" .

29 | Consider the following Table **"TEACHER"** | 3

T_ID	NAME	AGE	SEX	DEPT	D_O_JOIN	SALARY
902	SANDEEP	45	M	COMPUTER	10/10/2002	56000
813	SANGEETA	34	F	HISTORY	24/9/2010	50000
771	JOEL	48	M	ENGLISH	4/5/2001	67900
703	MANVITH	36	M	MATHS	27/09/2012	48000
606	NEENA	32	F	ENGLISH	23/5/2013	40000
537	ABHILASH	42	M	MATHS	6/2/2006	47000
420	MUHSIN	49	M	ENGLISH	8/3/2003	70450
412	SUBESH	52	M	HINDI	10/11/1999	60500
345	RENJINI	36	F	COMPUTER	27/4/2010	45000
218	DEEPTI	28	F	HINDI	2/2/2016	40000
160	SHUBHAM	39	M	SCIENCE	19/9/2011	45000

Based on the above table, Write SQL command for the following :
i) To show all information about the teacher of maths department
ii) To list name and department whose name starts with letter 'M'
iii) To display all details of female teacher whose salary in between 35000 and 50000

30 | Thushar received a message(string) that has upper case and lower-case alphabet. He want to extract all the upper case letters separately .Help him to do his task by performing the following user defined function in Python:
a) Push the upper case alphabets in the string into a STACK
b) Pop and display the content of the stack.
For example:
If the message is "All the Best for your Pre-board Examination"
The output should be : E P B A | 3

SECTION D

31 | Consider the table PRODUCT and CLIENT given below: | 4

PRODUCT

PR_ID	PR_NAME	MANUFACTURER	PRICE	QTY
BS101	BATH SOAP	PEARSE	45.00	25
SP210	SHAMPOO	SUN SILK	320.00	10
SP235	SHAMPOO	DOVE	455.00	15
BS120	BATH SOAP	SANTOOR	36.00	10
TB310	TOOTH BRUSH	COLGATE	48.00	15
FW422	FACE WASH	DETOL	66.00	10
BS145	BATH SOAP	DOVE	38.00	20

CLIENT

C_ID	C_NAME	CITY	PR_ID
01	DREAM MART	COCHIN	BS101
02	SHOPRIX	DELHI	TB310
03	BIG BAZAR	DELHI	SP235
04	LIVE LIFE	CHENNAI	FW422

Write SQL Queries for the following:
i) Display the details of those clients whose city is DELHI
ii) Increase the Price of all Bath soap by 10
iii) Display the details of Products having the highest price
iv) Display the product name, price, client name and city with their corresponding matching product Id.

32 | Gupta is writing a program to create a csv file "employee.csv" which will contain user name and password for department entries. He has written the following code . As a programmer, help him to successfully execute the given task. | 4

```
import ----------                                   #statement 1
def add_emp(username,password):
    f=open('employee.csv', '----------')            # statement 2
    content=csv.writer(f)
   content.writerow([username,password])
   f.close()
def read_emp( ):
    with open ('employee.csv','r') as file:
```

```
        content_reader=csv.----------(file)          # statement 3
        for row in content_reader:
            print(row[0],row[1])
    file.close( )
add_emp('mohan','emp123#')
add_emp('ravi','emp456#')
read_emp()                                          #statement 4
```

i) Name the module he should import in statement 1

ii) In which mode , Gupta should open the file to add record in to the file ? (statement 2)

iii) Fill in the blank in statement 3 to read the record from a csv file

iv) What output will he obtain while executing statement 4 ?

SECTION E

33 Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below: 5

JUNIOR SENIOR ADMIN HOSTEL

The distance between various building is as follows:

ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	150 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	350 m

Number of computer in each building is :

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

i) Suggest the cable layout of connections between the buildings.

ii) Suggest the most suitable place (i.e., building) to house the server of this college, provide a suitable reason.

iii) Is there a requirement of a repeater in the given cable layout? Why/ Why not?

iv) Suggest the placement of hub/switch with justification.

v) The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following:

a. Fiber optic cable
b. Microwave
c. Radiowave

34	i) What is Pickling or Serialization? ii) A binary file "salary.DAT" has structure [employee id, employee name, salary]. Write a function countrec() in Python that would read contents of the file "salary.DAT" and display the details of those employee whose salary is above 20000. **OR** i) What is the difference between 'r' and 'rb' mode in Python file ? ii) A binary file "STUDENT.DAT" has structure [admission_number, Name, Percentage]. Write a function countrec() in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 90. Also display number of students scoring above 90%	2+3=5
35	i) What do you mean by a Primary key in RDBMS ? ii) Complete the following database connectivity program by writing the missing statements and performing the given query import ---------- as mysql # statement 1 con=mysql. ---------(host='localhost',user='root',passwd='123' , database='student') # statement 2 cursor=con.cursor( ) cursor.execute(----------) # statement 3 data=cursor. ---------- # statement 4 for rec in data: print(rec) con.close( ) a) Complete the statement 1 by writing the name of package need to be imported for database connectivity . b) Complete the statement 2 by writing the name of method require to create connection between Python and mysql. c) Complete the statement 3 by writing the query to display those students record whose mark is between 50 and 90 from table "student" **d)** Complete the statement 4 to retrieve all records from the result set. **OR** i) What is the difference between UNIQUE and PRIMARY KEY constraints ? ii) Maya has created a table named BOOK in MYSQL database, LIBRARY BNO(Book number)- integer B_name(Name of the book) - string Price (Price of one book) –integer Note the following to establish connectivity between Python and MySQL: Username – root, Password – writer,Host – localhost. Maya, now wants to display the records of books whose price is more than 250. Help Maya to write the program in Python	1+4=5

****

KENDRIYA VIDYALAYA SANGATHAN

ERNAKULAM REGION

1st PRE BOARD EXAMINATION 2023 – 24

COMPUTER SCIENCE (083)

Class: XII

Time allowed: 3 Hours Maximum Marks: 70

MARKING SCHEME

Q.NO	QUESTION	MARKS
	SECTION - A	
1	Which of the following is a keyword in Python ? a) true b) For c) pre-board d**) False**	1
2	What will be the output for the following Python statement ? print(20//3*2+(35//7.0)) a) **17.0** b) 17 c) 8.5 d) 8	1
3	In MYSQL database, if a table, BOOK has degree 8 and cardinality 7, and another table, SALE has degree 4 and cardinality 7, what will be the degree and cardinality of the Cartesian product of BOOK and SALE ? b) 32 , 49 **b) 12, 49** c) 12 ,14 d) 32,14	1
4	What is " C " stands in TCP/IP ? a) Common b) Centre **c)Control** d) Coordinate	1
5	What is printed by the following statements ? ANIMAL={"dog":10,"tiger":5,"elephant":15,"Cow":3} print("Tiger" not in ANIMAL) a) **True** b)False c)Error d) None	1
6	Consider the following statements and choose the correct output from the given options : EXAM="COMPUTER SCIENCE" print(EXAM[:12:-2]) a) **EN** b) CI c)SCIENCE d) ENCE	1
7	What will be the output of the following code ? Tuple1=(10,) Tuple2=Tuple1*2 print(Tuple2)	1

	a) 20 b) (20,) c) **(10,10)** d) Error	
8	Fill in the blanks : The SQL keyword ---------- is used in SQL expression to select records based on patterns **LIKE**	1
9	What possible outcome will be produced when the following code is executed ? import random value=random.randint(0,3) fruit=["APPLE","ORANGE","MANGO","GRAPE"] for i in range(value): print(fruit[i],end='##') print() **a) APPLE##** b) APPLE# ORANGE## c) APPLE## ORANGE## d) ORANGE## MANGO## APPLE##	1
10	Select the network device from the following ,which connects , networks with different protocols a) Bridge b)**Gateway** c)Hub d) Router	1
11	State whether the following statement is TRUE or FALSE : The value of the expression 4/3*(2-1) and 4/(3*(2-1)) is the same **TRUE**	1
12	In the relational models , cardinality actually refers to ---------- a) **Number of tuples** b) Number of attributes c) Number of tables d) Number of constraints	1
13	Data structure STACK is also known as ---------- list a)First In First Out b) First In Last Out c)**Last In First Out** d) Last In Last Out	1
14	Which function is used to write a list of strings in a file ? a) Writeline( ) b) **writelines( )** c) write() d) writeall( )	1
15	Which of the following is NOT a guided communication medium ? a) Twisted pair cable b) **Microwave** c)Coaxial cable d) Optical fibre	1
16	Which of the following function headers is correct ? a) def fun(a=1,b): b) def fun(a=1,b,c=2): **c) def fun(a=1,b=1,c=2):** d) def fun(a=1,b=1,c=2,d):	1
	Q17 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):** In SQL, the aggregate function avg() calculates the average value on a set of values and produces a single result. **Reason (R):** The aggregate functions are used to perform some fundamental arithmetic tasks such as min(), max(), sum() etc (b) Both A and R are true and R is not the correct explanation for A .	1
18	**Assertion(A):** Python overwrites an existing file or creates a non-existing file when we open a file with 'w' mode. **Reason(R):** a+ mode is used only for writing operations (c) A is True but R is False	1
	SECTION - B	
19	i) Expand the following **:** a) SMTP : Simple Mail Transfer Protocol b) VoIP : Voice Over Internet Protocol ii) Give one disadvantage of Star topology Star topology has a single point of failure. If the central hub or switch fails, the entire network will be down. This can be a major problem for networks that require high availability. Or any other dis advantage. **OR** i) What is a web browser ? A software application used to access information on the World Wide Web is called a Web Browser. When a user requests some information, the web browser fetches the data from a web server and then displays the webpage on the user's screen. ii) Define the term MAC Address A MAC address (media access control address) is a 12-digit hexadecimal number assigned to each device connected to the network. Primarily specified as a unique identifier during device manufacturing, the MAC address is often found on a device's network interface card (NIC).	1+1=2
20	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . **num=30** for k in range**(0,num):** **if** k%4==0 : print(k*4) **else:** print(k+3)	½ mark each
21	Write a function letter_count(lst) that takes a list of string and returns a dictionary where the keys are the letters from lst and the values are the number of times that letter appears in the lst. For example: if the passed list is :	2

	Lst=list("apple") Then it should return a dictionary as {'a':1,'p':2,'l':1,'e':1} **OR** Write a function max_length( ) ,that takes a list of string as argument and display the longest string from the list. **Correct Program : 2 Marks**	
22	Predict the output of the following code: lst=[2,4,6,8,10] for i in range(1,5): lst[i-1]=lst[i] for i in range(0,5): print(lst[i],end=' ') **output:** `4 6 8 10 10`	2
23	Consider the following list of elements and write Python statement to print the output of each questions. elements=['apple',200,300,'red','blue','grapes'] i) print(elements[3:5]) `['red', 'blue']` ii) print(elements[::-1]) `['grapes', 'blue', 'red', 300, 200, 'apple']` **OR** Consider the following list exam and write Python statement for the following questions: i) To insert subject "maths" as last element exam.append('maths') ii) To display the list in reverse alphabetical order exam.sort(reverse=True)	2
24	Satheesh has created a database "school" and table "student". Now he wants to view all the databases present in his laptop. Help him to write SQL command for that , also to view the structure of the table he created. **SHOW DATABASES** **DESCRIBE/DESC student** **OR** Meera got confused with DDL and DML commands. Help her to select only DML command from the given list of command.	2

	UPDATE , DROP TABLE, SELECT , CREATE TABLE , INSERT INTO, DELETE , USE **DML**: UPDATE,SELECT,INSERT INTO,DELETE	
25	Predict the out put for the following Python snippet def calc(p,q=3): ans=1 for x in range(q): ans=ans*p return ans power=calc(3) print(power,'9') power=calc(3,2) print(power,'27') OUTPUT: 27 9 9 27	2
	SECTION C	
26	Predict the output of the Python code given below: def calculate(str): text='' x=range(len(str)-1) for i in x: if str[i].isupper(): text+=str[i] elif str[i].islower(): text+=str[i+1] else: text+='@' return text start='Pre-board Exam' final=calculate(start) print(final) OUTPUT: Pe-@oard @Eam	3

27 Consider the following table **DOCTOR** given below and write the out put of the SQL Queries that follows : — 3

D_ID	D_NAME	D_DEPT	GENDER	EXPERIENCE
101	JOSEPH	ENT	MALE	10
104	GUPTA	MEDICINE	MALE	12
106	SUMAN	ORTHO	FEMALE	7
111	HANEEF	ENT	MALE	12
123	DEEPTI	CARDIOLOGY	FEMALE	6
132	VEENA	SKIN	FEMALE	12

i) SELECT D_NAME FROM DOCTOR WHERE GENDER=MALE AND EXPERIENCE=12 ;

GUPTA
HANEEF

ii) SELECT DISTINCT(D_DEPT) FROM DOCTOR ;

DISTINCT(D_DEPT)
ENT
MEDICINE
ORTHO
CARDIOLOGY
SKIN

iii) SELECT D_NAME , EXPERIENCE FROM DOCTOR ORDER BY EXPERIENCE;

D_NAME	EXPERIENCE
DEEPTI	6
SUMAN	7
JOSEPH	10
GUPTA	12
HANEEF	12
VEENA	12

28 Write a function in Python to count the number of lines in a text fie 'EXAM.txt' which start with an alphabet 'T' . — 3

Correct function prototype ½ mark
Correct opening text file statement ½ mark
Correct logic 1 and ½ marks
Closing the file ½ mark

OR

Write a function in Python that count the number of "can" words present in a text file "DETAILS.txt" .

```
def count_word():
    count=0
```

```
    f=open("textfiles.txt","r")
    contents=f.read()
    word=contents.split()
    for i in word:
       if i==’can’:
            count+=1
    print("Number of words in the File is :",count )
    f.close()
count_word()
```

Correct function prototype ½ mark
Correct opening text file statement ½ mark
Correct logic 1 and ½ marks
Closing the file ½ mark

29 Consider the following Table **“TEACHER”**

T_ID	NAME	AGE	SEX	DEPT	D_O_JOIN	SALARY
902	SANDEEP	45	M	COMPUTER	10/10/2002	56000
813	SANGEETA	34	F	HISTORY	24/9/2010	50000
771	JOEL	48	M	ENGLISH	4/5/2001	67900
703	MANVITH	36	M	MATHS	27/09/2012	48000
606	NEENA	32	F	ENGLISH	23/5/2013	40000
537	ABHILASH	42	M	MATHS	6/2/2006	47000
420	MUHSIN	49	M	ENGLISH	8/3/2003	70450
412	SUBESH	52	M	HINDI	10/11/1999	60500
345	RENJINI	36	F	COMPUTER	27/4/2010	45000
218	DEEPTI	28	F	HINDI	2/2/2016	40000
160	SHUBHAM	39	M	SCIENCE	19/9/2011	45000

1MARK EACH

Based on the above table , Write SQL command for the following :

i) To show all information about the teacher of maths department

```
SELECT * FROM TEACHER WHERE DEPT=’MATHS’;
```

ii) To list name and department whose name starts with letter ‘M’

```
SELECT NAME,DEPT FROM TEACHER WHERE NAME LIKE ‘M%’;
```

iii) To display all details of female teacher whose salary in between 35000 and 50000

```
SELECT * FROM TEACHER WHERE SEX=’F’ AND SALARY BETWEEN
35000 AND 50000 ;
```

30 Thushar received a message(string) that has upper case and lower case alphabet.He want to extract all the upper case letters separately .Help him to do his task by performing the following user defined function in Python**:**

1 mark for push (), 1 mark

a) Push the upper case alphabets in the string into a STACK
b) Pop and display the content of the stack.
For example:
If the message is "All the Best for your Pre-board Examination"
The output should be: E P B A

for pop() and 1 mark for displaying

Ans:

```
def push(s,ch):
    s.append(ch)
def pop(s):
   if s!=[]:
        return s.pop()
   else:
        return None
string="All the Best for your Pre-board Examination"
st=[]
for ch in string:
   if ch.isupper():
        push(st,ch)
while True:
   item=pop(st)
   if item!=None:
        print(item,end= ' ')
   else:
         break
```

SECTION D

31 Consider the table PRODUCT and CLIENT given below:

PR_ID	PR_NAME	MANUFACTURER	PRICE	QTY
BS101	BATH SOAP	PEARSE	45.00	25
SP210	SHAMPOO	SUN SILK	320.00	10
SP235	SHAMPOO	DOVE	455.00	15
BS120	BATH SOAP	SANTOOR	36.00	10
TB310	TOOTH BRUSH	COLGATE	48.00	15
FW422	FACE WASH	DETOL	66.00	10
BS145	BATH SOAP	DOVE	38.00	20

PRODUCT

C_ID	C_NAME	CITY	PR_ID
01	DREAM MART	COCHIN	BS101
02	SHOPRIX	DELHI	TB310
03	BIG BAZAR	DELHI	SP235
04	LIVE LIFE	CHENNAI	FW422

1 mark each

	Write SQL Queries for the following : i) Display the details of those clients whose city is DELHI SELECT * FROM CLIENT WHERE CITY='DELHI'; ii) Increase the Price of all Bath soap by 10 UPDATE PRODUCT SET PRICE=PRICE+10 WHERE PR_NAME='BATH SOAP'; iii) Display the details of Products having the highest price SELECT * FROM PRODUCT WHERE PRICE=(SELECT MAX(PRICE) FROM PRODUCT) ; iv) Display the product name , price, client name and city with their corresponding matching product Id . SELECT PR_NAME , PRICE ,C_ID, CITY FROM PRODUCT , CLIENT WHERE PRODUCT.PR_ID=CLIENT.PR_ID ;	
32	Gupta is writing a program to create a csv file "employee.csv" which will contain user name and password for department entries. He has written the following code. As a programmer, help him to successfully execute the given task. import ---------- #statement 1 def add_emp(username,password): f=open('employee.csv', '----------') # statement 2 content=csv.writer(f) content.writerow([username,password]) f.close() def read_emp( ): with open ('employee.csv','r') as file: content_reader=csv.----------(file) # statement 3 for row in content_reader: print(row[0],row[1]) file.close( ) add_emp('mohan','emp123#') add_emp('ravi','emp456#') read_emp() #statement 4 i) Name the module he should import in statement 1 import csv ii) In which mode , Gupta should open the file to add record in to the file ? (statement 2) Mode a iii) Fill in the blank in statement 3 to read the record from a csv file reader iv) What output will he obtain while executing statement 4 ? mohan emp123# ravi emp456#	4

SECTION E

33 Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:

JUNIOR SENIOR ADMIN HOSTEL

The distance between various building is as follows:

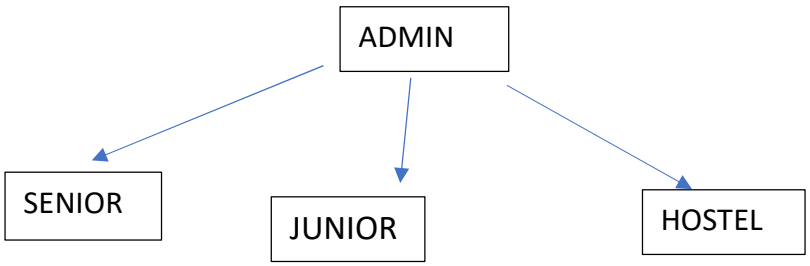
ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	150 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	350 m

Number of computer in each building is :

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

1 mark each

i) Suggest the cable layout of connections between the buildings.



ii) Suggest the most suitable place (i.e., building) to house the server of this college , provide a suitable reason.

ADMIN, as number of computers are more in ADMIN building

	iii) Is there a requirement of a repeater in the given cable layout? Why/ Why not? Yes, between ADMIN TO JUNIOR and ADMIN TO SENIOR distance is more than 100 m. iv) Suggest the placement of hub/switch with justification. In all building as it is required to connect all computers in to a network. v) The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following : a. Fiber optic cable b. Microwave c. Radiowave **Radio wave**	
34	i) What is Pickling or Serialization? The process of converting Python object hierarchy into byte stream so that it can be written into a file. ii) A binary file "salary.DAT" has structure [employee id, employee name, salary]. Write a function countrec() in Python that would read contents of the file "salary.DAT" and display the details of those employee whose salary is above 20000. def countrec(): num=0 fobj=open("salary.dat",'rb') try: while True: rec=pickle.load(fobj) if rec[2]> 20000: print(rec[0],rec[1],rec[2]) except: fobj.close() **OR** i) What is the difference between 'r' and 'rb' mode in Python file ? r is used to read text files and rb is used to read binary files ii) A binary file "STUDENT.DAT" has structure [admission_number, Name, Percentage]. Write a function countrec() in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 90. Also display number of students scoring above 90% import pickle def countrec(): fobj=open('student.dat','rb') num=0 try:	2+3=5

```
        while True:
            rec=pickle.load(fobj)
            if rec[2]>90:
               num=num+1
                print(re[0],rec[1],rec[2])
      except:
     fobj.close()
     return num
```

35

i) What do you mean by a Primary key in RDBMS ?

In the relational model of databases, a primary key is a specific choice of a minimal set of attributes that uniquely specify a tuple in a relation.

ii) Complete the following database connectivity program by writing the missing statements and performing the given query

```
import ---------- as mysql                          # statement 1
con=mysql. ---------(host='localhost',user='root',passwd='123' ,
                    database='student')              # statement 2
cursor=con.cursor( )
cursor.execute(-------------------------------)      # statement 3
data=cursor. ---------------------------------       # statement 4
for rec in data:
      print(rec)
con.close( )
```

i) Complete the statement 1 by writing the name of package need to be imported for database connectivity .

mysql.connector

ii) Complete the statement 2 by writing the name of method require to create connection between Python and mysql. 1+4=5

connect()

iii) Complete the statement 3 by writing the query to display those students record whose mark is between 50 and 90 from table "student"

select * from student where mark between 50 and 90

iv) Complete the statement 4 to retrieve all records from the result set.

cursor.fetchall()

OR

i) What is the difference between UNIQUE and PRIMARY KEY constraints ?

The difference between a UNIQUE constraint and a Primary Key is that per table may only have one Primary Key but may define more than one UNIQUE constraints

	ii) Maya has created a table named BOOKt in MYSQL database, LIBRARY BNO(Book number)- integer B_name(Name of the book) - string Price (Price of one book) –integer Note the following to establish connectivity between Python and MySQL: Username - root Password - writer Host – localhost Maya, now wants to display the records of books whose price is more than 250. Help Maya to write the program in Python 1 mark each for creating connection object, Creating cursor, Writing sql command	

KENDRIYA VIDYALAYA SANGATHAN::HYDERABAD REGION
FIRST PREBOARD EXAMINATION 2023-24
CLASS: XII
SUBJECT: COMPUTER SCIENCE (083)

MAX.MARKS:70 **TIME ALLOWED: 3 Hrs**

General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 4 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

S.NO	QUESTION	MARKS
	SECTION A	
1	State True or False: "The else clause of python loop executes when the loop terminates normally"	1
2	What is the maximum value that can be stored in NUMERIC (4, 2)? a. 9999.99 b. 99.9999 c. 99.99 d. 9.99	1
3	What is the output of the following expression? print(float(5+int(4.39+2.1)%2)) a. 5 b. 5.0 c.8.0 d. 8	1
4	Select correct output of the python code: X="Swatchtha Hi Seva @ Swatcch Bharat" Y=X.split() print(Y) a. ['Swatchtha Hi Seva', '@', 'Swatcch Bharat'] b. ['Swatchtha Hi', 'Seva@', 'Swatcch', 'Bharat'] c. ['SwatchthaHi', 'Seva', '@', 'SwatcchBharat'] d. ['Swatchtha', 'Hi', 'Seva', '@', 'Swatcch', 'Bharat']	1
5	In the following SQL Query which type of join is mentioned? SELECT customer.cust_id, order.cust_id , name, order_id from customer,order WHERE customer.cust_id=order.cust_id; a. Equi Join b. Natural Join c. Cross Join d. Cartesian Product	1
6	Network in which every computer is capable of playing the role of a client, or a server or both at same time is called a. local area network b. peer-to-peer network c.dedicated server network d. wide area network	1
7	Given the following dictionaries dict_fruit={"Banana":"Yellow", "DraganFruit":"Pink"} dict_vegetable={"Chilli":"Green", "Brinjal":"Purple"} Which statement will merge the contents of both dictionaries? a. dict_fruit.update(dict_vegetable) b. dict_fruit + dict_vegetable c. dict_fruit.add(dict_vegetable) d.dict_fruit.merge(dict_vegetable)	1
8	Which of the following statement(s) would give an error after executing the following code? Str="BharatiyaBashaUtsav" # Statement 1 print(Str) # Statement 2 Str="India @ 75" # Statement 3	1

	Str[1]= '$' # Statement 4 Str=Str+"Thank you" # Statement 5 a. Statement 1 b. Statement3 c. Statement 4 d. Statement 5	
9	Consider the statements given below and then choose the correct output from the given options: tp1=(10,15,20,60) tp1=tp1+(3) print(tp1) a. (10,15,20,60,3) b. (3,10,15,20,60) c. (10,15,20,60, (3)) d. Error	1
10	What could be the minimum possible and maximum possible numbers generated by following code? import random print(random.randint(3,10)-3) a. 0,7 b. 1,8 c.3,10 d. 2,9	1
11	A device that forwards data packet on dissimilar networks is called a _____ a. Bridge b. Hub c. Router d. Gateway	1
12	Find and write the output of the following python code: a=10 def call(): global a a=15 b=20 print(a) call() a. 10 b. 20 c. 15 d. 25	1
13	State whether the following statement is True or False "Every syntax error is an exception but every exception cannot be a syntax error"	1
14	Fill in the blank: An attribute in a relation can be a foreign key if it is the _____ key in any other relation. a. Candidate Key b. Foreign Key c. Primary Key d. Unique Key	1
15	_____is a communication methodology designed to establish a direct and dedicated communication between an internet user and his/her ISP. a. VoIP b. SMTP c.PPP d.HTTP	1
16	Which function is used to write a list of string in a file? a. writeline() b. writelines() c. writestatement() d. writefullline()	1
	Q17 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**):Key word arguments are related to the function calls **Reason(R):** When you use keyword arguments in a function call, the caller identifies the arguments by the parameter name	1

18	**Assertion (A)** : In Python, a stack can be implemented using a list. **Reasoning (R)** : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).	1
	SECTION B	
19	a. Expand the following: i. FTP ii. IMAP b. What is the use of XML **(OR)** Write one advantage and one disadvantage of guided over unguided communication media.	1+1=2
20	Kunika, a Python programmer, is working on a project in which she wants to write a function to count the number of even and odd values in the list. She has written the following code but his code is having errors. Rewrite the correct code and underline the corrections made. define EOcount(L): evensum=oddsum=0 for i in range(0,len(L)) if L[i]%2=0: evensum+=1 Else: oddsum+=1 print(evensum, oddsum)	2
21	Write a function Show_sal(EMP) in python that takes the dictionary, EMP as an argument. Display the salary if it is less than 25000 Consider the following dictionary EMP={1:18000,2:25000,3:28000:4:15000} The output should be: 18000 15000 EMP={1:18000,2:25000,3:35000,4:15000} **(OR)** Write a function, VowelWords(Str), that takes a string as an argument and returns a tuple containing each word which starts with an vowel from the given string For example, if the string is "An apple a day keeps the doctor away", the tuple will have (“An”,”apple”,”a”, “away”)	2
22	Predict the output of the Python code given below: L=[4,3,6,8,2] Lst=[] for i in range(len(L)): if L[i]%2==0: t=(L[i],L[i]**2) Lst.append(t) print(Lst)	2
23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: i. To return index position of substring in given string. ii. To delete first occurrence of an item in the list (OR) A list named stu_marks stores marks of students of a class. Write the Python command to import the required module and display the average of the marks in the list.	1+1=2
24	Differentiate between Alter and Update?	2

	OR What is the difference between WHERE and HAVING clause of SQL statement?	
25	Predict the output of the following code: def ChangeVal(M,N): for i in range(N): if M[i]%5==0: M[i]+=5 if M[i]%3==0: M[i]+=3 L=[5,8,15,12] ChangeVal(L,4) for i in L: print(i,end='$')	2
	SECTION C	
26	Predict the output of the following code: L1=[10,20,30,40,12,11] n=2 l=len(L1) for i in range (0,n): y=L1[0] for j in range(0,l-1): L1[j]=L1[j+1] L1[l-1]=y print(L1)	3
27	Consider the table SportsClub given below and write the output of the SQL queries that follow. Table:SportsClub playerid | pname | sports | country | rating | salary 10001 | PELE | SOCCER | BRAZIL | A | 50000 10002 | FEDERER | TENNIS | SWEDEN | A | 20000 10003 | VIRAT | CRICKET | INDIA | A | 15000 10004 | SANIA | TENNIS | INDIA | B | 5000 10005 | NEERAJ | ATHLETICS | INDIA | A | 12000 10006 | BOLT | ATHLETICS | JAMAICA | A | 8000 i. SELECT DISTINCT Sports from SportsClub; ii. SELECT sports, SUM(salary) FROM SportsClub GROUP BY sports HAVING SUM(salary)>15000; iii. SELECT pname, sports, salary FROM SportsClub WHERE country='INDIA' ORDER BY salary DESC;	1*3=3
28	Write a function in Python to read a text file, Rhyme.txt and displays those words which have length more than 5 (OR) Write a function, in Python that counts the number of lines in text file named “data.txt” and displays the lines which are starting with “K” or ‘k’.	3

29 | Consider the table CHIPS given below: | 3

TABLE: CHIPS

BRAND_NAME	FLAVOUR	PRICE	QUNATITY
LAYS	ONION	10	5
LAYS	TOMATO	20	12
UNCLE CHIPS	SPICY	12	10
UNCLE CHIPS	PUDINA	10	12
HALDIRAM	SALTY	10	20
HALDIRAM	TOMATO	25	30

Based on the given table write SQL queries for the following:

i. Change the Flavour of the chips to "black salt " for those chips whose flavour is "SALTY"
ii. Display the Brand_Name ,Flavour and Total Amount(price*quantity) of those chips whose Brandname ends with 's'. Total Amount column name should also be displayed.
iii. Delete the records of those chips whose quantity is less than 10

30 | Write a function in Python, Push(Cosmetics) where, Cosmetic is a dictionary containing the details of products– {Pname:price}.
The function should push the names of those products in the stack whose price is greater than 130.
Also display the count of elements pushed into the stack.
For example:
If the dictionary contains the following data:
Ditem = {"FaceWash":105, "Facepack":150, "CleansingMilk":130, "Sunscreen": 180, "FaceMask":115}
The stack should contain
Facepack
Sunscreen
The output should be:
The count of elements in the stack is 2 | 3

SECTION D

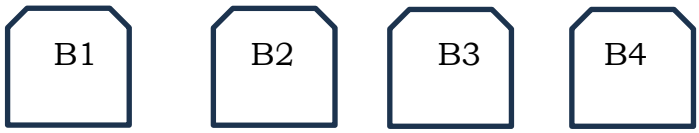
31 | Consider the following tables BOOKS and ISSUED in a database named "LIBRARY". | 1*4=4

Table: BOOKS

BID	BNAME	AUNAME	PRICE	TYPE	QTY
COMP11	LET US C	YASHWANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	150	GEOGRAPHY	20
HIST66	HISTORY	R BALA	210	HISTORY	25
COMP12	MY FIRST C	VINOD DUA	330	COMPUTER	18
LITR88	MY DREAMS	ARVIND AD	470	NOBEL	24

Table: ISSUED

BID	QTY_ISSUED
HIST66	10
COMP11	5
LITR88	15

	Write SQL queries for the following: i. Display bookname, Author name and quantity issued from table Books and issued. ii. Display the details of books in the order of qty whose price is in between 200 to 300 iii. Display total qty of books of type "Computer" iv. List the tables in the database Library	
32	Mandeep is a Python programmer working in C-company. For storing details of employees working in the company, he has created a csv file named record.csv, to store the The structure of record.csv is : [Emp_Id, Emp_Name, Mobile, Salary] Where Emp_Id is Employee ID (integer) Emp_Name is Employee Name (string) Mobile is to store mobile number of employee (integer) Salary – Salary earned by the employees(integer) Mandeep want to write program in Python that defines and calls the following user defined functions: a) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as empid, name and mobile andemployee salary respectively. b) COUNTR() – To count the number of records present in the CSV file named 'record.csv'. As python expert help him complete the task	4
	SECTION E	
33	A company SUN Enterprises has four blocks of buildings as shown:  Center to center distance between various block B3 TO B1 50 M B1 TO B2 60 M B2 TO B4 25 M B4 TO B3 170 M B3 TO B2 125 M B1 TO B4 90 M Number or computers in each Block B1 150 B2 15 B3 15 B4 25 Computers in each block are networked but blocks are not networked. The company has now decided to connect the blocks also. i. Suggest the most appropriate topology for the connections between the blocks. ii. Do you require any repeaters in network if yes state the reason iii. Which device will you suggest for connecting all the computers with in each of their blocks?	1*5=5

	iv. The company is planning to link its head office situated in Ahmedabad with the offices in hilly areas. Suggest a way to connect it economically v. Suggest the most appropriate location of the server, to get the best connectivity for maximum number of computers.	
34	i. Differentiate between r and w file modes in python ii. Consider a binary file "book.dat" that has structure [BookNo, Book_Name, Author, Price]. Write a user defined function CreateFile() that takes input data for a record and add to book.dat (OR) i. How are CSV files different from Binary Files ii. Consider a binary file "MyFile.dat" that has following structure [empid, ename and salary]. Write a userdefined function to search records based on the salary entered by the user and if the salary is more than 25000 then display the record.	2+3=5
35	i. Define the term Degree with respect to RDBMS. Give one example to support your answer ii. Kavyawants to write a program in Python to insert the following recordin the table named Inventory in MYSQL database, WAREHOUSE: Inv_No(Inventory Number)- integer Inv_name(Name) – string Inv_Entry(Date) Inv_price – Decimal Note the following to establish connectivity between Python andMySQL: Username - root Password - 12345 Host - localhost The values of fields Inv_No, Inv_name, Inv_Entryand Inv_price has to be accepted fromthe user. Help Kavyato write the program in Python. OR i. Give one difference between Primary key and candidate key. ii. Sarithahas created a table Inventory in MYSQL database, warehouse: Inv_No(Inventory Number)- integer Inv_name(Name) – string Inv_Entry(Date) Inv_price – Decimal Note the following to establish connectivity between Python and MySQL: Username - root Password - 12345 Host - localhost Saritha, now wants to delete the records of inventory whose price is more than 1000. Help Saritha to write the program in Python.	(1+4)=5

****

KENDRIYA VIDYALAYA SANGATHA N HYDERABAD REGION
IST PREBOARD EXAMINATION 2023-24
CLASS: XII **MAX.MARKS:70**
SUBJECT: COMPUTER SCIENCE (083) **DURATION: 3HRS**

MARKING SCHEME

S.no	Question and answers	Distribution of Marks
	SECTION A	
1	True 1 mark for correct answer	1
2	c. 99.99 1 mark for correct answer	1
3	b. 5.0 1 mark for correct answer	1
4	d. ['Swatchtha', 'Hi', 'Seva', '@', 'Swatcch', 'Bharat'] 1 mark for correct answer	1
5	a. Equi Join 1 mark for correct answer	1
6	b. peer-to-peer network 1 mark for correct answer	1
7	a. dict_fruit.update(dict_vegetable) 1 mark for correct answer	1
8	c. Statement 4 1 mark for correct answer	1
9	d.Error 1 mark for correct answer	1
10	a. 0,7 1 mark for correct answer	1
11	d. gateway 1 mark for correct answer	1
12	b. 15 1 mark for correct answer	1
13	True 1 mark for correct answer	1
14	c. Primary Key 1 mark for correct answer	1
15	c.PPP 1 mark for correct answer	1
16	a. writeline() 1 mark for correct answer	1
17	a. Both A and R are true and R is the correct explanation for A 1 mark for correct answer	1
18	c. A is True but R is False 1 mark for correct answer	1
	SECTION B	
19	a. Expand the following: i. FTP – File Transfer Protocol ii. IMAP- Internet Message Access Protocol ½ mark for each correct expansion	1+1=2

	b. What is the use of XML XML (Extensible Markup Language) 1.we can define our own tags and use them 2. Dynamic web development language – as it is used for transporting and storing data 1 mark for correct explanation (OR) a. Write one advantage and one disadvantage of guided over unguided communication media. Advantage : By adding more wires, the transmission capacity can be increased in guided media. Disadvantage: It cannot pass through walls and cannot travel long distance 1 mark for each correct advantage and disadvantage	
20	Kunika, a Python programmer, is working on a project in which she wants to write a function to count the number of even and odd values in the list. She has written the following code but his code is having errors. Rewrite the correct code and underline the corrections made. define EOcount(L): evensum=oddsum=0 for i in range(0,len(L)) if L[i]%2=0: evensum+=1 Else: oddsum+=1 print(evensum, oddsum) Corrections : def EOcount(L): evensum=oddsum=0 for i in range(0,len(L)): if L[i]%2==0: evensum+=1 else: oddsum+=1 print(evensum, oddsum) ½ mark for each correction made	2
21	Write a function Show_sal(EMP) in python that takes the dictionary, EMP as an argument. Display the salary if it is less than 25000 Consider the following dictionary EMP={1:18000,2:25000,3:28000:4:15000} The output should be: 18000 15000 Solution: EMP={1:18000,2:25000,3:35000,4:15000}	2

	def Show_Sal(EMP): for sal in EMP.values(): if sal<25000: print(sal) Show_Sal(EMP) ½ mark for correct function header ½ mark for correct loop ½ mark for correct if statement ½ mark for displaying the output (OR) Write a function, VowelWords(Str), that takes a string as an argument and returns a tuple containing each word which starts with an vowel from the given string For example, if the string is "An apple a day keeps the doctor away", the tuple will have (“An”,”apple”,”a”, “away”) Solution: Str=”An apple a day keeps doctor away” Tup=( ) def VowelWords(Str): words=Str.split() if words[0] in “aeiouAEIOU”: Tup=Tup+(word,) return Tup T=VowelWords(Str) print(“The Vowel Word Tuple is”, T) ½ mark for correct function header ½ mark for using split() ½ mark for adding to tuple ½ mark for return statement	
22	Predict the output of the Python code given below: L=[4,3,6,8,2] Lst=[] for i in range(len(L)): if L[i]%2==0: t=(L[i],L[i]**2) Lst.append(t) print(Lst) output : [(4, 16), (6, 36), (8, 64), (2, 4)] ½ mark for each correct value in output	2
23	Write the Python statement/function for each of the following tasks using BUILT-IN functions/methods only: i. To return index position of substring in given string. ii. To delete first occurrence of an item in the list Solution: i-find( ) ii – remove( ) 1 mark for each correct answer (OR)	1+1=2

	A list named stu_marks stores marks of students of a class. Write the Python command to import the required module and display the average of the marks in the list. Solution: import statistics stu_marks =[45,60,70,85,40] print(statistics.mean(stu_marks)) 1 mark for correct import statement 1 mark for correct command with mean() and print()	
24	Ans: ALTER used to change the structure of the database table. This statement can add up additional column, drop existing, and even change the data type of columns involved in a database table. (i) UPDATE used to update existing data within a table. o r Ans: The difference between WHERE and HAVING clause is that WHERE condition are applicable on individual rows whereas HAVING condition are applicable on groups as formed by GROUP BY clause. 1 mark each for correct explanation of both.	2
25	Predict the output of the following code: def ChangeVal(M,N): for i in range(N): if M[i]%5==0: M[i]+=5 if M[i]%3==0: M[i]+=3 L=[5,8,15,12] ChangeVal(L,4) for i in L: print(i,end='$') output: 10$8$20$15$ 2 marks for correct output	2
	SECTION C	
26	L1=[10,20,30,40,12,11] n=2 l=len(L1) for i in range (0,n): y=L1[0] for j in range(0,l-1): L1[j]=L1[j+1] L1[l-1]=y print(L1) output [30, 40, 12, 11, 10, 20]	3

	½ mark for each correct value in output	
27	Consider the table SportsClub given below and write the output of the SQL queries that follow. SPORTSCLUB **playerid** | **pname** | **sports** | **country** | **rating** | **salary** 10001 | PELE | SOCCER | BRAZIL | A | 50000 10002 | FEDERER | TENNIS | SWEDEN | A | 20000 10003 | VIRAT | CRICKET | INDIA | A | 15000 10004 | SANIA | TENNIS | INDIA | B | 5000 10005 | NEERAJ | ATHLETICS | INDIA | A | 12000 10006 | BOLT | ATHLETICS | JAMAICA | A | 8000 i. SELECT DISTINCT Sports from SportsClub; ii. SELECT sports, SUM(salary) FROM SportsClub GROUP BY sports HAVING SUM(salary)>15000; iii. SELECT pname, sports, salary FROM SportsClub WHERE country='INDIA' ORDER BY salary DESC; i. sports SOCCER TENNIS CRICKET ATHLETICS ii. sports | SUM(salary) SOCCER | 50000 TENNIS | 25000 ATHLETICS | 20000 iii. pname | sports | salary VIRAT | CRICKET | 15000 NEERAJ | ATHLETICS | 12000 SANIA | TENNIS | 5000 1 mark for each correct output	1*3=3
28	Write a function in Python to read a text file, Rhyme.txt and displays those words which have length more than 5 Solution: def displaywords(): file=open(“Rhyme.txt”,”r”) lst=file.readlines() for i in lst:	3

```
        word=i.split()
        for j in word:
            if len(j)>5:
                print(j)
    file.close()
displaywords()
```

1 mark for correctly opening and closing files
½ mark for correctly reading data
1 mark for correct loop and if statement
½ mark for displaying data

(OR)

Write a function, in Python that counts the number of lines in text file named "data.txt" and displays the lines which are starting with "K" or 'k'.

Solution:

```
def countlines():
    file=open("data.txt","r")
    lines=file.readlines()
   count=0
   for w in lines:
       if w[0]=='K' or w[0]=='k':
              count+=1
              print(w)
  print("Total no of lines starting with  K or k are",count)
  file.close()
countlines()
```

1 mark for correctly opening and closing the files
½ mark for correctly reading data
1 mark for correct loop and if statement
½ mark for displaying the output.

29 Consider the table CHIPS given below: 3

TABLE: CHIPS

BRAND_NAME	FLAVOUR	PRICE	QUNATITY
LAYS	ONION	10	5
LAYS	TOMATO	20	12
UNCLE CHIPS	SPICY	12	10
UNCLE CHIPS	PUDINA	10	12
HALDIRAM	SALTY	10	20
HALDIRAM	TOMATO	25	30

Based on the given table write SQL queries for the following:

i. Change the Flavour of the chips to "black salt " for those chips whose flavour is "SALTY"
ii. Display the Brand_Name ,Flavour and Total Amount(price*quantity) of those chips whose

	Brandname ends with 's'. Total Amount column name should also be displayed. iii. Delete the records of those chips whose quantity is less than 10. Solution: i. UPDATE CHIPS SET FLAVOUR ="BLACK SALT" WHERE FLAVOUR="SALTY" ii. SELECT BRAND_NAME,FLAVOUR,PRICE*QUANTITY AS "TOTAL QUANTITY" WHERE BRAND_NAME LIKE "%S"; iii. DELETE FROM CHIPS WHERE QUANTITY <10; 1 mark for each correct query	
30	Write a function in Python, Push(Cosmetic) where, Cosmetic is a dictionary containing the details of products– {Pname:price}. The function should push the names of those products in the stack whose price is greater than 130. Also display the count of elements pushed into the stack. For example: If the dictionary contains the following data: Ditem = {"FaceWash":105, "Facepack":150, "CleansingMilk":130, "Sunscreen": 180, "FaceMask":115} The stack should contain Facepack Sunscreen The output should be: The count of elements in the stack is 2 Solution: Stackcosmetic=[] def push(Cosmetic): count=0 for k in Cosmetic: if Cosmetic[k]>130: Stackcosmetic.append(k) count+=1 print("The number of elements in the stack",count) 1/2 mark for correct definition of function 1/2 mark for correct use of for loop 1/2 mark for correct use of if statement ½ mark for pushing elements in to stack ½ mark for calculating no. of elements ½ mark for printing the no. of elements in the stack	3
	SECTION D	
31	Consider the following tables BOOKS and ISSUED in a database named "LIBRARY".	1*4=4

Table: BOOKS

BID	BNAME	AUNAME	PRICE	TYPE	QTY
COMP11	LET US C	YASHWANT	350	COMPUTER	15
GEOG33	INDIA MAP	RANJEET P	150	GEOGRAPHY	20
HIST66	HISTORY	R BALA	210	HISTORY	25
COMP12	MY FIRST C	VINOD DUA	330	COMPUTER	18
LITR88	MY DREAMS	ARVIND AD	470	NOBEL	24

Table: ISSUED

BID	QTY_ISSUED
HIST66	10
COMP11	5
LITR88	15

Write SQL queries for the following:

i. Display bookname , Author name and quantity issued from table Books and issued.
ii. Display the details of books in the order of qty whose price is in between 200 to 300
iii. Display total qty of books of type “Computer”
iv. List the tables in the database Library

Solution:

i.

```
SELECT BNAME,AUNAME,QTY_ISSUED FROM BOOKS,
ISSUED WHERE  BOOKS.BID=ISSUED.BID;
```

ii.

```
SELECT * FROM BOOKS WHERE PRICE BETWEEN 200
AND 300 ORDER BY QTY;
```

iii.

```
SELECT SUM(QTY) FROM BOOKS WHERE
TYPE=”COMPUTER”;
```

iv.

```
USE BOOKS;
SHOW TABLES;
```

1 mark for each correct query

32

Solution:

```
import csv
def ADD():
    Emp_Id=int(input(“enter Employee Id”))
    Emp_Name=input(“Enter employee name”)
    Mobile= input(“Enter Mobile number”)
    Salary=float(input(“Enter Salary”))
    Headings=[“Employee ID”,”Employee Name”,”Mobile
    Number”,”Salary”]
    Data=[Emp_Id,Emp_Name,Mobile,Salary]
    F=open(“record.csv”,’a’,newline=”)
    csvwriter=csv.writer(F)
    csvwriter.writerow(Headings)
    csvwriter.writerow(Data)
    F.close()
```

4

	½ mark for accepting data correctly ½ mark for opening and closing file ½ mark for writing headings ½ mark for writing row countrec=0 def COUNTR(): f=open("record.csv",'r') data=csv.reader(f) d=list(data) print(" the no. of records in a file",len(d)) f.close() ½ mark for opening and closing file ½ mark for reader object ½ mark for calculating length ½ mark for returning or printing no. of records	
	SECTION E	
33	A company SUN Enterprises has four blocks of buildings as shown: i. Star/Bus topology ii. repeaters are required as the distance between B3-B2 and B3-B4 is exceeding 100M iii. Switch/Hub iv. Any unguided media suitable for hilly areas v. B1 block as it has more number of computers 1 mark for each correct answer	1*5=5
34	i. Differentiate between r and w file modes in python ii. Consider a binary file "book.dat" that has structure [BookNo, Book_Name, Author, Price]. Write a user defined function CreateFile() that takes input data for a record and add to book.dat Solution: i. r mode: opens the file in read mode and file pointer is place at the beginning of the file. If file does not exist returns error. w mode: Opens the file in write mode and file pointer is placed at the beginning of the file. If the file does not exist it creates a new file and if file exists it overwrites the file 1 mark for each correct difference (minimum two differences should be given) ii. To create File	2+3=5

```
import pickle
def CreateFile():
     data=[]
     f=open("book.dat","ab")
     ans='y'
    try:
       while ans=='y':
             BookNo=int(input("Enter Book Number")
             Book_Name=input("Enter Book Name")
             Author=input("Enter Author name")
             Price=float(input("Enter price for the book"))
            Data=[BookNo,Book_Name,Author,Price]
            pickle.dump(data,f)
           ans=input("want to append more records? y/n...")
   except EOFError:
           f.close()
```

½ mark each for correctly opening and closing files
1 mark for correct usage of loop
1 mark for dumping records correctly

OR

i. How are CSV files different from Binary Files

Csv file:

CSV (Comma Separated Values) is a file format for data storage which looks like a text file.The information is organized with one record on each line and each field is separated by comma.

Binary file:

A binary file stores the data in the same way as as stored in the memory. The .exe files, mp3 file, image files, word documents are some of theexamples of binary files. We can't read a binary file using a text editor.

1 mark for each correct difference
(minimum two differences should be given)

ii. Consider a binary file "MyFile.dat" that has following structure [empid, ename and salary].
The file contains 15 records.
Write a userdefined function to search for records
based on the salary entered by the user and
if the the salary is more than 25000 then display the record.

Solution:

```
import pickle
def search():
 emp={}
 found=False
 f=open(MyFile.dat","rb")
 try:
    while True:
          emp=pickle.load(f)
```

	if emp['salary']>25000: print(emp) found=True except EOFerror: if found==False: print("no such records found in the file") else: print("Search successfully") f.close() ½ mark each for correctly opening and closing files 1 mark for correct usage of loop 1 mark for correct use of if and printing records correctly	
35	i. Define the term Degree with respect to RDBMS. Give one example to support your answer Degree is defined as no. of attributes in a relation. ½ mark for correct explanation and ½ mark for correct example ii. import mysql.connector as s con=s.connect(host="localhost",user="root",passwd="12345",database="warehouse") mycursor=con.cursor() Inv_No=int(input("Enter Inventory no")) Inv_Name=input("Enter inventory Name") Inv_Entry=input("Enter inventory entry date") Inv_price =float(input("Enter price")) i="insert into inventory values ({},'{}','{}',{})".format(Inv_No, Inv_name, Inv_Entry, Inv_price) mycursor.execute(i) con.commit() print("data added successfully") con.close() print("Thank you") ½ mark for importing correct module 1 mark for correct connect() ½ mark for correctly accepting the input 1 ½ mark for correctlyexecuting the query ½ mark for correctly using commit() (OR) i. Give one difference between Primary key and candidate key. Primary key is used to uniquely identify a tuple in a relation Candidate key is a column which have capability to become a primary key 1 mark for correct difference ii. Solution: import mysql.connector as s con=s.connect(host="localhost",user="root",passwd="12345",database="warehouse") mycursor=con.cursor()	(1+4)=5

	query=”delete from inventory where Inv_Price>1000;” mycursor.execute(query) con.commit() con.close() ½ mark for importing correct module 1 mark for correct connect() 1 ½ mark for correctlyexecuting the query ½ mark for correctly using commit() ½ for closing the connection	

केंद्रीय विद्यालय संगठन, जयपुर संभाग
Kendriya Vidyalaya Sangathan, Jaipur Region
प्रथम प्री-बोर्ड परीक्षा 2023-24
First Pre-Board Exam 2023-24

कक्षा/Class: XII **विषय/Subject : Computer Science (083)**

समय : 3 घंटे पूर्णांक/**Max Marks: 70**

सामान्य निर्देश / General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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.

खंड / SECTION-A		
प्रश्न सं Q. No.	**प्रश्न / Question**	अंक / Marks
1.	State True or False "break keyword skips remaining part of an iteration in a loop and compiler goes to starting of the loop and executes again"	1
2.	Find the valid keyword from the following? a) Student-Name b) False c) 3rdName d) P_no	1
3.	What will be the output for the following Python statement? X={'Sunil':190, 'Raju':10, 'Karambir':72, 'Jeevan':115} print('Jeevan' in X, 190 in X, sep="#") (a)True#False (b) True#True (c) False#True (d) False#False	1
4.	Consider the given expression: **True and False or not True** Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (b) (c) NONE (d) NULL	1
5.	Select the correct output of the code: a = "Python! is amazing!" a = a.split('!') b = a[0] + "." + a[1] + "." + a[2] print (b) (a) Python!. is amazing!. (b) Python. is amazing. (c) Python. ! is amazing.! (d) will show error	1
6.	Which of the following mode in file opening statement overwrite the existing content? (a) a+ (b) r+ (c) w+ (d) None of the above	1
7.	The attribute which have properties to be as referential key is known as. (a) foreign key (b)alternate key (c) candidate key (d) Both (a) and (c)	1
8.	Which command is used to change some values in existing rows? (a) CHANGE (b) MODIFY (b) (c) ALTER (d) UPDATE	1

9.	Which of the following statement(s) would give an error after executing the following code? Q="Humanity is the best quality" # Statement1 print(Q) # Statement2 Q="Indeed." # Statement3 Q[0]= '#' # Statement4 Q=Q+"It is." # Statement5 (a) Statement 3 (b) Statement 4 (c)Statement 5 (d)Statement 4 and 5	1
10.	p=150 def fn(q): _____ #missing statement p=p+q fn(50) print(p) Which of the following statements should be given in the blank for #missing statement if the output produced is 200 (a) global p=150 (b) global p (c) p=150 (d) global q	1
11.	Which function is used to split a line of string in list of words? (a)split( ) (b) splt( ) (c) split_line( ) (d) all of these	1
12.	What possible output(s) will be obtained when the following code is executed import random k=random.randint(1,3) fruits=['mango', 'banana', 'grapes', 'water melon', 'papaya'] for j in range(k): print(j, end="*") (a) mango*banana*grapes (b) banana*grapes (c) banana*grapes*watermelon (d) mango*grapes*papaya	1
13.	Fill in the blank: _____is a communication protocol responsible for sending emails. (a) TCP (b) SMTP (c) PPP (d)HTTP	1
14.	What will be the ouput when following expression be evaluated in Python? print(21.5 // 4 + (8 + 3.0)) (a) 16 (b)14.0 (c) 15 (d) 15.5	1
15.	Which of the following functions other than close() writes the buffer data to file (a) push() (b) write() (c) writeBuffer() (d) flush()	1
16.	To get counting of the returned rows, you may use…….. (a) cursor.rowcount (b) cursor.count (c) cursor.countrecords() (d) cursor.manyrecords()	1

Q17 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 are provided in the format parameter=argument, it is called keyword arguments. Reasoning (R):- During a function call, the argument list first contain keyword argument(s) followed by positional argument(s).	1
18.	Assertion (A): CSV (Comma Separated Values) is a file format for data storage with one record on each line and each field is separated by comma. Reason (R): The format is used to share data between cross platform as text editors are	1

	available on all platforms.	
	खंड / SECTION-B	
19.	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. Num=int(rawinput("Number greater than 10 :")) sum=0 for i in range(10,Num,3) sum+=1 if i%2=0: print(i*2) else: print(i*3) print(sum)	2
20.	Write one advantage and one disadvantage of packet switching **OR** Which language is the most suitable language to create web pages?	2
21.	(a)Given is a Python string : X=”Kendriya Vidyalaya sangathan” Write the output of: **print(X[4:9]*2)** (b) Write the output of the python program code given below: hello = {empname: "Ishan", address: ”New Delhi”, salary: 10000} hello[salary] = 15000 hello[address] = "Delhi" print(hello.keys())	1 1
22.	Explain the use of GROUP BY clause in a Relational Database Management System. Give example to support your answer.	2
23.	(a) Write the full forms of the following: (i)POP3 (ii) VoIP (b) Define RJ-45?	2
24.	Predict the output of the Python code given below: `def Alter(P=15,Q=10):` `  P=P*Q` `  Q=P/Q` `  print(P,"#",Q)` `  return Q` `A=100` `B=200` `A=Alter(A,B)` `print(A,"$",B)` `B=Alter(B)` `print(A,"$",B)` `A=Alter(A)` `print(A,"$",B)` **OR** **Predict the output of the Python code given below:** a=tuple() a=a + tuple(‘Python’) print(a) print(len(a)) b=(10,20,30) print(len(b))	2
25.	Differentiate Where and Having clause in SQL with example. **OR** Define aggregate function and give example.	2

खंड / SECTION-C

26. (a) Consider the following tables – Employee and Office: 1+2

Table: Emp

Emp_Id	Name	Salary
E01	Lakshya	54000
E02	Ravi	NULL
E03	Neeraj	32000
E04	Brijesh	42000

Table: dept

Emp_Id	Dept	DOJ
E01	Computer	05-SEP-2007
E02	Physics	05-JAN-2008
E03	Sports	30-DEC-2000
E04	English	05-SEP-2012

What will be the output of the following statement?

SELECT Name, Dept FROM Emp E, dept d WHERE E.Emp_Id=d.Emp_Id;

(b) Consider the following tables SCHOOL and ADMIN. Give the output the following SQL queries:

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

i. SELECT Designation, COUNT (*) FROM Admin GROUP BY Designation HAVING COUNT (*) <2;

ii. SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER DESC;

27. Write a method **beginA()** in Python to read lines from a text file Notebook.TXT, and display those lines, which are starting with 'A'. 3

For 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 beginA() function should display the output as:

An apple a day keeps the doctor away.

A marked difference will come in our country.

OR

A text file "PYTHON.TXT" contains alphanumeric text. Write a program that reads this

	text file and writes to another file "PYTHON1.TXT" entire file except the numbers or digits in the file.	
28.	(a) Write the outputs of the SQL queries (i) to (iv) based on the relations CLUB and STUDENT given below:	3

Table : CLUB

COACHID	CNAME	AGE	SPORTS	DATEOFAPP	PAY	GENDER
1	KUKREJA	35	KARATE	27/03/1996	1000	M
2	RAVINA	34	KARATE	20/01/1998	1200	F
3	KARAN	34	SQUASH	19/02/1998	2000	M
4	TARUN	33	BASKETBALL	01/01/1998	1500	M
5	ZUBIN	36	SWIMMING	12/01/1998	750	M
6	KATAKI	36	SWIMMING	24/02/1998	800	F
7	ANKITA	39	SQUASH	20/02/1998	2200	F
8	ZAREEN	37	KARATE	22/02/1998	1100	F
9	KUSH	41	SWIMMING	13/01/1998	900	M
10	SHAILYA	37	BASKETBALL	19/02/1998	1700	M

Table : STUDENT

COACHID	SNAME	STIPEND	STREAM	MARKS	GRADE	CLASS
1	KARAN	400.00	MEDICAL	78.5	B	12B
12	VINNET	450.00	COMMERCE	89.2	A	11C
13	VIVEK	300.00	COMMERCE	68.6	C	12C
4	DHRUV	350.00	HUMANITIES	73.1	B	12C
15	MOHIT	500.00	NONMEDICAL	90.6	A	11A
6	ANUJ	400.00	MEDICAL	75.4	B	12B
17	ABHAY	250.00	HUMANITIES	64.4	C	11A
18	PAYAL	450.00	NONMEDICAL	88.5	A	12A
19	DIKSHA	500.00	NONMEDICAL	92.0	A	12A
10	RISHIKA	300.00	COMMERCE	67.5	C	12C

i) SELECT SPORTS, MIN(PAY) FROM Club Group by SPORTS ;
ii) SELECT MAX(DATEOFAPP), MIN(DATEOFAPP) FROM CLUB;
iii) SELECT CNAME, PAY, C.COACHID, SPORTS FROM CLUB C, STUDENT S WHERE C.COACHID =S.COACHID AND PAY>=1500;
iv) SELECT SName, CNAME FROM Student S, CLUB C WHERE Gender ='F' AND C.COACHID=S.COACHID;

(b) Write SQL command to list all databases.

29.	Write a function shiftn(L,n), where L is a list of integers and n is an integer. The function should return a list after shifting n number of elements to the left. Example: If the list initially contains [2, 15, 3, 14, 7, 9, 19, 6, 1, 10] and n=2 then function should return [3, 14, 7, 9, 19, 6, 1, 10, 2, 15] If the list initially contains [2, 15, 3, 14, 7, 9, 19, 6, 1, 10] and n=4 then function should return [7, 9, 19, 6, 1, 10, 2, 15, 3, 14]	3
30.	A nested list contains the data of visitors in a museum. Each of the inner lists contains the following data of a visitor: [V_no (int), Date (string), Name (string), Gender (String M/F), Age (int)] Write the following user defined functions to perform given operations on the stack named "status": (i) Push_element(Visitors) - To Push an object containing Gender of visitor who are in the age range of 15 to 20. (ii) Pop_element() - To Pop the objects from the stack and count and display the number of Male and Female entries in the stack. Also, display "Done" when there are no elements in the stack. For example: If the list of Visitors contains:	3

[['305', "10/11/2022", “Geeta”,"F”, 35],
['306', "10/11/2022", “Arham”,"M”, 15],
['307', "11/11/2022", “David”,"M”, 18],
['308', "11/11/2022", “Madhuri”,"F”, 17],
['309', "11/11/2022", “Sikandar”,"M”, 13]]

The stack should contain

F
M
M

The output should be:

Female: 1
Male: 2
Done

OR

Write a function in Python, Push(EventDetails) where , EventDetails is a dictionary containing the number of persons attending the events– {EventName : NumberOfPersons}. The function should push the names of those events in the stack named ‘BigEvents’ which have number of persons greater than 200. Also display the count of elements pushed on to the stack.

For example:

If the dictionary contains the following data:

EventDetails ={"Marriage":300, "Graduation Party":1500, "Birthday Party":80, "Get together" :150}

The stack should contain:

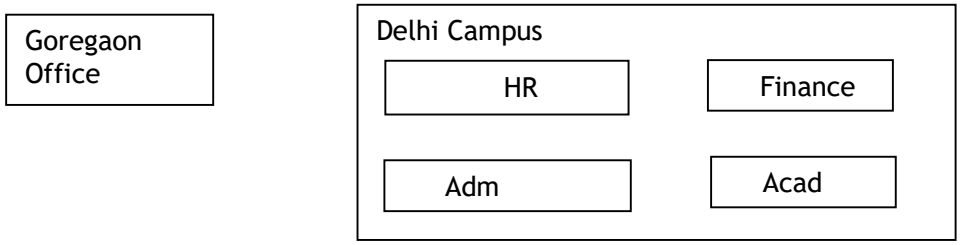
Marriage
Graduation Party

The output should be:

The count of elements in the stack is 2

खंड / SECTION-D

31. Ripunjay is planning to connect its Delhi Campus with its head office at Goregaon. Its Delhi Campus is spread across an area of approx. 1 square kilometers consisting of 3 blocks. HR, Acad and Adm. You as a network expert have to suggest answers to the five queries (i) to (v) raised by them. 5*1



Shortest distances between various blocks

HR to Adm	120m
HR to Acad	75m
Acad to Adm	130m
HR to Finance	70m
Finance to Adm	90m
Goregaon to Delhi Campus	50 km

Number of computers installed at various blocks

Block	**Number of Computers**

	HR 250 Adm 30 Acad 70 Finance 20 Goregaon 20 (i) Suggest the most suitable block in the Delhi Campus to host the server. Give a suitable reason with your suggestion. (ii) Suggest the cable layout among the various blocks within the Delhi Campus for connecting the blocks. (iii) Suggest the placement of the following devices with appropriate reasons: a. Switch / Hub b. Repeater (iv) Suggest a protocol that shall be needed to provide Video Conferencing solution between Goregaon Office and Delhi campus. (v) Suggest the type of network to connect Goregaon Office and Delhi campus.	
32.	(a) Write the output of the code given below: a=5 def add(b=2): global a a=a+b print(a,'#',b) return a b=add(a) print(a,'#',b) b=add(b) print(a,'#',b) (b) The code given below inserts the following record in the table Employee: EmpNo – integer Name – string Department – string Salary – integer Note the following to establish connectivity between Python and MYSQL: ▪ Username is root ▪ Password is brick ▪ The table exists in a MYSQL database named organization. ▪ The details (EmpNo, Name, Department and Salary) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to form the cursor object Statement 2 – to execute the command that inserts the record in the table Student. Statement 3- to add the record permanently in the database import mysql.connector as mysqldef sql_data(): con=mysql.connect(host="localhost",user="root",password="brick", database="organization") mycursor=_____ **#Statement 1** eno=int(input("Enter Employee number :: ")) name=input("Enter Name :: ") dept=input("Enter Department name :: ") sal=int(input("Enter Salary :: "))	2+3

```
        query="insert into student values({},'{}',{},{})".format(eno,name,dept,sal)
        _____                                   #Statement 2
        _____                                   # Statement 3
        print("Data Added successfully")
```

OR

(a) Predict the output of the code given below:

```
a="Give me a glass of water!"
n =len(a)
b=" "
for i in range(0, n):
        if a[i] >= 'a' and a[i] <= 'k':
                b = b + a[i].upper()
        elif (a[i] >= 'l' and a[i] <= 'z'):
                b = b + a[i-1]
        elif   a[i].isupper():
                b = b + a[i].lower()
        else:
                b = b + '#'
print(b)
```

(a) The code given below reads the following record from the table named items and displays only those records who have price greater than 100:

ItemNo –integer
Name – string
Price – integer

Note the following to establish connectivity between Python andMYSQL:

- Username is root
- Password is epic
- The table exists in a MYSQL database named **store.**

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the query that extracts records of items with price greater than 100.
Statement 3 - to read the complete result of the query (records whose marks are greater than 75) into the object named data, from thetable studentin the database.

```
import mysql.connector as mysqlcon
def sql_data():
        con=mysqlcon.connect(host="localhost",user="root",password="epic",
        database="store")
        mycursor=_____#Statement1
        print("Items with price greater than 100 are :")
        _____#Statement2
        data=_____#Statement3
        for i in data:
            print(i)
```

33.	a. What is the advantage of using a csv file for permanent storage? **b.** Write a python program to create a csv file dvd.csv and write 10 records in it Dvdid, dvd_name, qty, price. Display those dvd details whose dvd price is more than 25. **OR** a Write difference between a binary file and a csv file.	2+3

b. Write a Program in Python that defines and calls the following user defined functions:

(i) **add() –** To accept and add data of an employee to a CSV file 'empdata.csv'. Each record consists of a list with fieldelements as eid, ename and salaryto store empid, emp name and emp salary respectively.

(ii) search()- To display the records of the emp whose salary is more than 10000.

खंड / SECTION-E

34. Mubarak creates a table Items with a set of records to maintain the details of items. After creation of the table, he has entered data of 5 items in the table. 1+1+2

Table: items

ItemNo	Item	Scode	Qty	Rate	LastBuy
2005	Sharpener Classic	23	60	8	31-JUN-09
2003	Balls	22	50	25	01-FEB-10
2002	Gel Pen Premium	21	150	12	24-FEB-10
2006	Gel Pen Classic	21	250	20	11-MAR-09
2001	Eraser Small	22	220	6	19-JAN-09

Based on the data given above answer the following questions:

(i) Identify the most appropriate column, which can be considered as Primary key.

(ii) If 3 columns are added and 2 rows are deleted from the table , what will be the new degree and cardinality of the above table?

(iii) Write the statements to:

a. Insert the following record into the table as (2024, Point Pen, 20, 11, 350, 15-NOV-2022).

b. Increase the rate of the items by 2% whose name ends with 'c'.

OR (Option for part iii only)

(iii) Write the statements to:

a. Delete the record of items having rate greater than equal to 10.

b. Add a column REMARKS in the table with datatype as varchar with 50 characters

35. Anamika is a Python programmer. She has written a code and created a binary file **data.dat** with sid, sname and marks. The file contains 10 records.
She now has to update a record based on the sid entered by the user and update the marks. The updated record is then to be written in the file **extra.dat**. The records which are not to be updated also have to be written to the file extra.dat. If the sid is not found, an appropriate message should to be displayed.
As a Python expert, help him to complete the following code based on requirement given above:

```
import ……..                                          #Statement 1
def update_data():
    rec={}
    fin=open("data.dat","rb")
    fout=open("_____")                               #Statement 2
    found=False
    eid=int(input("Enter student id to update their marks :: "))
    while True:
        try:
            rec=_____                                #Statement 3
            if rec["student id"]==sid:
                    found=True
                    rec["marks"]=int(input("Enter new marks:: "))
            pickle._____                             #Statement 4
```

```
        except:
            break
    if found==True:
        print("The marks of student id ",sid," has been updated.")
    else:
        print("No student with such id is not found")
    fin.close()
    fout.close()
```

(i) Which module should be imported in the program? (Statement1)

(ii) Write the correct statement required to open a temporary file named extra.dat. (Statement 2)

(iii) Which statement should Anamika fill in Statement 3 to read the data from the binary file, data.dat and in Statement 4 towrite the updated data in the file, **extra.dat**?

KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION

I-Pre Board Examination 2023-24

Class-12 Subject: Computer Science (083)

Answer Key

SECTION-A		
QN.	Answer of Question	
1.	False	1
2.	False	1
3.	True#False	1
4.	False	1
5.	(b)Python. is amazing.	1
6.	(c) w+	1
7.	(a) foreign key	1
8.	(d) UPDATE	1
9.	(b) Statement 4	1
10.	(b) global p	1
11.	(a) split()	1
12	(a) mango*banana*grapes	1
13	(b) SMTP	1
14	Ans. (a) 16	1
15	(d) flush()	1
16	(a) cursor.rowcount	1
17	Ans. (c) A is True but R is False	1
18	Ans: (a) Both A and R are true and R is the correct explanation for A	1
SECTION-B		
19.	Num=int(input("Number greater than 10 :")) sum=0 for i in range(10,Num,3): Sum+=1 if i%2==0: print(i*2) else: __print(i*3) print(Sum)	2
20.	1 mark for any correct advantage and disadvantage each **OR** Hyper Text Markup Language. Yes it has pre defined tags.	2
21.	(a) Ans: riya riya (b) dict_keys(['empname', 'address', 'salary'])	1 1
22.	Ans. GROUP BY clause is used to get the summary data based on one or more groups. The groups can be formed on one or more columns. For example, the GROUP BY query will be used to count the number of employees in each department, or to get the department wise total salaries. SELECT COUNT(ENAME), SUM(SALARY), DEPT FROM EMPLOYEES GROUP BY DEPT;	2
23.	(i) Post office Protocol 3 (ii) Voice over Internet Protocol (b) Ans: Registered Jack-45 is used as connector to connect ethernet cable to ethernet Port in the CPU	2

<table>
<tr><td>24.</td><td>Ans:
20000 # 100.0
100.0 $ 200
2000 # 200.0
100.0 $ 200.0
1000.0 # 100.0
100.0 $ 200.0
OR

Ans:
('Python')
6
3</td><td>2</td></tr>
<tr><td>25.</td><td>Ans. Where" clause is used to filter the records from a table that is based on a specified condition, then the "Having" clause is used to filter the record from the groups based on the specified condition. OR

Ans. Aggregate function are group functions which works on group of rows. Examples are sum(), min(), max(), avg(), count() etc.</td><td>2</td></tr>
<tr><td colspan="3">SECTION-C</td></tr>
<tr><td>26.</td><td>a)
<table><tr><td>Name</td><td>Dept</td></tr><tr><td>Lakshya</td><td>Computer</td></tr><tr><td>Ravi</td><td>Physics</td></tr><tr><td>Neeraj</td><td>Sports</td></tr><tr><td>Brijesh</td><td>English</td></tr></table>
b)

(i) Vice principal 1

(ii) YASHRAJ
UMESH</td><td>1+2</td></tr>
<tr><td>27.</td><td>Ans:
def beginA():
f=open('Notebook.TXT')
l=f.readlines()
for i in l:
if i[0]=='A' or i[0]= ='a':
#or if i[0] in ["A","a']
print(i)
f.close()
OR
fr=open("PYTHON.TXT")
fw=open("PYTHON1.TXT", 'w')
d=fr.read()
for i in d:
if not i.isdigit():
fw.write(i)
fr.close()
fw.close()</td><td>3</td></tr>
</table>

	½ marks each for correct piece of code	
28.	Ans. (a) i) Give 1 mark each correct output SPORTS MIN(PAY) Karate 1000 Squash 2000 Basketball 1500 Swimming 750 ii) Give 1 mark each correct output MAX(DATEOFAPP), MIN(DATEOFAPP) 24/02/1998 27/03/1996 iii) Give 1 mark each correct output CNAME PAY C.COACHID SPORTS TARUN 1500 4 BASKETBALL SHAILYA 1700 10 BASKETBALL iv) Give 1 mark each correct output SNAME CNAME ANUJ KATAKI b) Show databases;	3
29.	def shiftn(L,n): return L[n:]+L[:n]	3
30.	visitors=[['305', '10/11/2022', 'Geeta','F', 15],['306', '10/11/2022', 'Arham','M', 15],\['307', "11/11/2022", 'David','M', 18],['308', "11/11/2022", 'Madhuri','F', 17]] status=[] def Push_Element(visitors): global status for i in visitors: if i[4]>=15 and i[4]<=20: status.append(i[3]) def Pop_Element(): global status m,f=0,0 if status!=[]: r=status.pop() if r== 'F': f+=1 else: m+=1 else: print("Female :",f) print("Male :",m) print("Done") OR def Push(EventDetails): BigEvents=[] count=0 for i in EventDetails: if EventDetails[i]>200: BigEvents.append(i) count+=1 print("The count of elements in the stack is",count)	3
	SECTION-D	

31.	Ans. (i) HR because it has maximum number of computers (ii) Star topology with HR at centre (any appropriate block diagram) (iii) Switch need to be installed in each of the block repeater where distance is greater than 100m (iv) VoIP (v) WAN	5*1
32.	Ans. (a) 10 # 5 10 # 10 20 # 10 20 # 20 Ans: (b) Statement 1: con.cursor() Statement 2: mycursor.execute(query) Statement 3: con.commit() OR Ans. (a) gliE# E#A#GgAas# F# AaEe# Ans. (b) Statement 1: con.cursor() Statement 2: mycursor.execute("select Name from items where price>100") Statement 3: mycursor.fetchall()	2+3
33.	(a) Advantage of a csv file: It is human readable – can be opened in Excel and Notepad applications It is just like text file (b) ½ marks for each correct piece of code. OR Ans: Difference between binary file and csv file: (Any one difference may be given) Binary file: Program: import csv def add(): fout=open("empdata.csv","a",newline='\n') wr=csv.writer(fout) fid=int(input("Enter Emp Id :: ")) fname=input("Enter Emp name :: ") fprice=int(input("Enter psalary :: ")) FD=[eid,ename,salary] wr.writerow(FD) fout.close() def search(): fin=open("furdata.csv","r",newline='\n') data=csv.reader(fin)	2+3

Binary	csv
Extension is .dat	Extension is .csv
Not human readable	Human readable
Stores data in the form of 0s and 1s CSV file	Stores data like a text file

	found=False print("The Details are") for i in data: if int(i[2])>10000: found=True print(i[0],i[1],i[2]) if found==False: print("Record not found") fin.close() add() print("Now displaying") search()	
	SECTION-E	
34.	Ans. (i) ItemNo (ii) Cardinality=3 and Degree=9 (iii) a) Insert into items values (2024, 'point pen', 20, 11, 350, '2022-NOV-15'); b) Update items Set rate=rate+(rate*0.02) Where Item like '%c'; OR iii) Delete From items where rate>=10; b) Alter table items Add column (Remarks Varchar(50));	1+1 +2
35.	**(i)** pickle **(ii)** fout=open('extra.dat', 'wb') **(iii)** pickle.load(fin) **(iv)** pickle.dump(rec,fout)	1 1 1 1

केंद्रीय विद्यालय संगठन, जयपुर संभाग
Kendriya Vidyalaya Sangathan, Jaipur Region
प्रथम प्री-बोर्ड परीक्षा 2023-24
First Pre-Board Exam 2023-24

कक्षा/Class: XII **विषय/Subject : Computer Science (083)**

समय : 3 घंटे पूर्णांक/**Max Marks: 70**

सामान्य निर्देश / General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions (1 to 18) carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions (19 to 25) carrying 02 marks each.
5. Section C has 05 Short Answer type questions (26 to 30) carrying 03 marks each.
6. Section D has 02 Long Answer type questions (31 to 32) carrying 04 marks each.
7. Section E has 03 questions (33 to 35) carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

खंड / SECTION-A		
प्रश्न सं Q. No.	**प्रश्न / Question**	अंक / Marks
1.	State True or False " continue keyword is not a jump statement in a loop."	1
2.	Fill in the blank: _____command is used to remove a column from a table in SQL. (a)update (b)remove (c) alter (d)drop	1
3.	Given the following dictionaries dict_stud = {"rno" : "53", "name" : 'Rajveer Singh'} dict_mark = {"Accts" : 87, "English" : 65} Which statement will merge the contents of both dictionaries in dict_stud? (a) dict_stud + dict_mark (b) dict_stud.add(dict_mark) (c) dict_stud.merge(dict_mark) (d) dict_stud.update(dict_mark)	1
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
5.	Which of the following commands will delete the rows of table? (a) DROP command (b) DELETE Command (c) REMOVE Command (d) ALTER Command	1
6.	Fill in the blank: _____is the first page that normally view at a website. (a) First Page (b) Master Page (c) Home Page (d) Login Page	1
7.	When a Python function does not have return statement then what it returns? (a) int (b) float (c) None (d)Give Error	1
8.	Select the correct output of the code: >>> a= "Year 2022 at All the best" >>> a = a.split('2') >>> a = a[0] + ". " + a[1] + ". " + a[3]	1

	>>> print (a) (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	
9.	Which of the following statement(s) would give an error after executing the following code? S="Welcome to class XII" # Statement 1 print(S) #Statement 2 S="Thank you" # Statement 3 S[0]= '@' # Statement 4 S=S+"Thank you" # Statement 5 (a) Statement 3 (b) Statement 4 (c) Statement 5 (d) Statement 4 and 5	1
10.	What will the following expression be evaluated to in Python? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1
11.	Which is the smallest network? a) WAN (b) LAN c) MAN (d) PAN	1
12.	Write the possible outputs(s) when this code is executed? import random n=random.randint(0,3) color=["Y","W","B","R"] for i in range (1,n): print(color[i], end="*") print( ) a) R * b) W* W* B* B* c) W* W* d) Y* B* B* W* W* B* B* B*	1
13.	Which Python approach is used for object serialization in handling of Binary File? (a) Pickling (b) Un-pickling (c) Merging (d) None of these	1
14.	Fill in the blank: _____Keyword is used to obtain Non-duplicated values in a SELECT query. (a) ALL (b) DISTINCT (c) SET (d) HAVING	1
15.	Fill in the blank: _____ is the way of connecting the networking devices.	1
16.	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? (a) Mycur.fetch() (b) Mycur.fetchone() (c) Mycur.fetchmany(n) (d) Mycur.fetchall()	1
Q17 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): A variable declared as global inside a function is visible with changes made to it outside the function.	1

	Reasoning (R): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	
18.	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (R): A binary files are just like normal text files and can be read using a text editor like notepad.	1
	खंड / SECTION-B	
19.	(i) Write the full forms of the following: (a) IP (b) URL (ii) What is the use of VoIP? **OR** (i) Mention one advantage of Star Topology. **(ii)** Mention one difference between a Hub and switch in networking.	1+1=2
20.	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. Define reverse(num): rev = 0 While num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234))	2
21.	Write a function INDEX_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of L. **For example:** If L contains: [2, 0, 5, 0, 1, 0, 0] The indexList will have: [0,2,4] **OR** Write definition of a function Count_How_Many(Data, item) to count and display number of times the value of item is present in the list Data. (Note: don't use the count() function) For example : **If the Data contains [101,102,107,105,102,103,104,102] and item contains 102** **The function should display 102 found 3 Times.**	2
22.	Predict the output of the Python code given below: def foo(s1,s2): l1=[ ] l2=[ ] for x in s1: l1.append(x) for x in s2: l2.append(x) return l1,l2 a,b=foo("HAPPY",'BIRTHDAY') print(a,b)	2
23.	Write the Python statement for each of the following tasks: (i) str="PYTHON@LANGUAGE" To print the above string from index 2 onwards using a single statement. (ii) To initialize an empty dictionary named as d using BUILT_IN fuctions/ methods only. **OR** Write the Python statement for each of the following tasks using BUILT_IN fuctions/ methods only:	1+1=2

(i) s="LANGUAGE"
To convert the above string into list.
(ii)To initialize an empty tuple named as t.

24. A MySQL table, sales have 10 rows with many columns, one column name is DISCOUNT. Following queries were executed on sales table. 2

SELECT COUNT(*) FROM sales;

COUNT(*)
10

SELECT COUNT(DISCOUNT) FROM sales;

COUNT(DISCOUNT)
6

Write a statement to explain as to why there is a difference in result of both queries.

OR

Write commands to open database 'KVS' and show all tables in this database. And display design/schema/structure of the table EMPLOYEE which is inside this database. And display all the records of table EMPLOYEE.

25. Predict the output of the Python code given below: 2

```
data = [20,19,19,17,20,19,17,20]
d = {}
for x in data:
    if x in d:
        d[x]=d[x]+1
    else:
        d[x]=1
print(d)
```

खंड / SECTION-C

26. Write the output of the code given below: 3

```
def change(Line):
    alpha=str()
    digi=str()
    for ch in Line:
        if(ch.isalpha()):
            if(ch.islower()):
                alpha=alpha+ch.upper()
            elif(ch.isupper()):
                alpha=alpha+ch.lower()
        elif(ch.isdigit()):
            alpha=alpha+ch+ch
    print(Line)
    print(alpha)
change("Vande 0 Bharat 9 Train 1")
```

27. Write the output of queries (i) to (iii) based on the table Sportsclub given below: 1*3= 3

Table: Sportsclub

playerid	pname	sports	country	rating	salary
10001	PELE	SOCCER	BRAZIL	A	50000
10002	FEDERER	TENNIS	SWEDEN	A	20000
10003	VIRAT	CRICKET	INDIA	A	15000
10004	SANIA	TENNIS	INDIA	B	5000
10005	NEERAJ	ATHLETICS	INDIA	A	12000
10006	BOLT	ATHLETICS	JAMAICA	A	8000
10007	PAUL	SNOOKER	USA	B	10000

(i) SELECT DISTINCT sports FROM Sportsclub;

(ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports

	HAVING sports<>'SNOOKER'; (iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC;	
28.	A pre-existing text file data.txt has some words written in it. Write a python function **displaywords( )** that will print all the words that are having length greater than 3. **If the contents of file is :** A man always wants to strive higher in his life He wants to be perfect. **The output should be:** always wants strive higher life wants perfect. **OR** Write a method count_lines( ) in Python to read lines from text file 'student.txt' and display the total number of line in file and lines which are ending with 'y' alphabet and not ending with 'y' separately. **Example: If the file content is as follows:** An apple in a day keeps the doctor away. We should aware for everyone's safety and security. India is one of the biggest country in word. **The count_lines( ) function should display the output as:** The number of lines in file are: 3 The number of lines ending with alphabet 'y' are: 2 The number of lines not ending with alphabet 'y' are: 1	3
29.	Monika is a senior clerk in a MNC. She created a table 'Salary' with a set of records to keep ready for tax calculation. After creation of the table, she has entered data of 5 employees in the table. +--------+---------------+--------------------+-------+-------+-------+------+ | emp_id | emp_name | emp_desig | basic | da | hra | nps | +--------+---------------+--------------------+-------+-------+-------+------+ | E01 | Naveen Roy | Manager | 70000 | 20000 | 8000 | 7000 | | E02 | Pawan Ahuja | Junior Clerk | 20000 | 2000 | 2500 | 2000 | | E03 | Kalpana Rani | Public Expert | 50000 | 5000 | 4500 | 2500 | | E04 | Govind Mishra | Director | 90000 | 40000 | 11500 | 900 | | E05 | Seeta Johar | Production Manager | 80000 | 35000 | 10500 | 850 | +--------+---------------+--------------------+-------+-------+-------+------+ Based on the table given above write the SQL Queries: **(i)** Display the Emp_Name and Gross salary of each employee. (Gross= basic+da+hra+nps) **(ii)** Increase the DA by 3% of respective basic salary of all employees. **(iii)** Delete the Attribute emp_desig from the table.	1*3= 3
30.	A list of numbers is used to populate the contents of a stack using a function **push(stack, data)** where stack is an empty list and data is the list of numbers.The function should push all the numbers that are even to the stack. Also write the function **pop(stack)** that removes and returns the top element of the stack on its each call. Also write the function calls.	3

खंड / SECTION-D

31. Write the SQL queries (i) to (iv) based on the relations SCHOOL and ADMIN given below: 1*4=4

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

Write SQL queries for the following:

i) Display total periods subjectwise.

ii) Display minimum experience and maximum code from relation SCHOOL.

iii)Display teachername, gender by joining both tables on the basis of CODE attribute for the designation "COORDINATOR.

iv) Display the total number of different subjects in school relation.

32. Write a Program in Python that defines and calls the following user defined functions: 4

Add_New():

To accept record of Player and add to 'playerdata.csv' file. The record of player consists P_id, P_name and P_runs in form of python list.

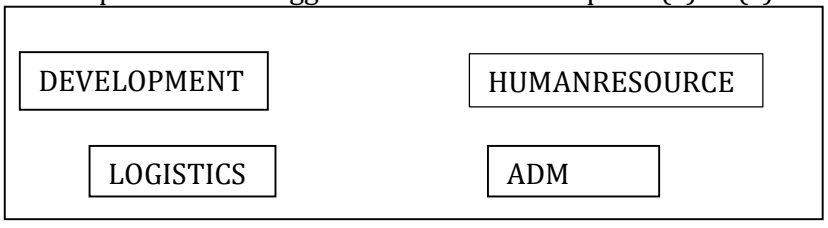
Display_Record():

To read the records of Player from 'playerdata.csv' file and display the record of player whose runs are more than 5000.

खंड / SECTION-E

33. Hitech Info Limited wants to set up their computer network in Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. 1*5=5

You as a network expert have to suggest answers to these parts (a) to (e) raised by them.



Shortest distances between various blocks

Block DEVELOPMENT to Block HUMANRESOURCE -- 50 m

Block DEVELOPMENT to Block ADM-- 75 m

	Block DEVELOPMENT to Block LOGISTICS-- 80 m Block HUMANRESOURCE to Block ADM-- 110 m Block ADM to Block LOGISTICS 140 m **Number of computers installed at various blocks** **Block Number of Computers** DEVELOPMENT -- 105 HUMANRESOURCE-- 130 ADM-- 190 LOGISTICS-- 55 a) Suggest the most suitable block to host the server. Justify your answer. b) Suggest the wired medium and Draw the cable layout (Block to Block) to economically connect various blocks. c)Suggest the placement of the following devices with justification: (i) Hub/Switch (ii)Repeater d)Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services. e) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.	
34.	(i) What is CSV means? Which packages/modules are imported for using Binary Files and CSV files in Python? (ii) Abhay have a binary file called library.dat containing book information- B_id, B_name and B_price of each book. [[B_id, B_name, B_price],[B_id, B_name, B_price],…] Write the user defined function **Trace_Book()** to show the records of books having the price less than 1000. In case there is no book having price <1000 the function displays message "Such Record not found". **OR** (i) Write any two difference between text file and binary file. (ii)Mayur is a student, who have a binary file called STUDENT.DAT containing employee information- sid, name and age of each student. [sid, name , age] Write the user defined function **Get_Stud()** to display the name and age of those student who have a age greater than 18 year. In case there is no student having age >18 the function displays message "There is no student who is greater than 18 year".	2+3= 5
35.	(i) What is the difference between a Candidate Key and an Alternate Key. (ii) Virat has created a table named TRAVELS in MySQL: Tour_ID – string Destination – String Geo_Cond– String Distance – integer (In KM) Note the following to establish connectivity between Python and MYSQL: • Username is root • Password is bharat • The table TRAVELS exists in a MYSQL database named TOUR. • The details Tour_ID, Destination, Geo_Cond and Distance are to be accepted from the user. Virat wants to display All Records of TRAVELS relation whose Geographical condition	1+4=5

	is hilly area and distance less than 1000 KM. Help Virat to write program in python. **OR** (i) Write one point of difference between PRIMARY KEY and UNIQUE KEY in SQL. (ii) Aarya has created a table named Emp in MySQL: EmpNo – integer EmpName – string Age– integer Salary – integer Note the following to establish connectivity between Python andMYSQL: • Username - root • Password - tiger • Host - localhost • The Emp table exists in a MYSQL database named **company.** • The details of Emp table (EmpNo, EmpName, Age and Salary) Aarya wants to display All Records of Emp relation whose age is greater than 55. Help Aarya to write program in python.	

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KENDRIYA VIDYALAYA SANGATHAN, JAIPUR REGION

PreBoard-I Examination 2023-24

Class-XII

Subject: Computer Science (083)

Answer Key

<table>
<tr><td colspan="3">SECTION-A</td></tr>
<tr><td>QN.</td><td>Answer of Question</td><td></td></tr>
<tr><td>1.</td><td>Ans. False</td><td>1</td></tr>
<tr><td>2.</td><td>Ans. (c) alter</td><td>1</td></tr>
<tr><td>3.</td><td>Ans: (d) dict_student.update(dict_marks)</td><td>1</td></tr>
<tr><td>4.</td><td>Ans. (b) True</td><td>1</td></tr>
<tr><td>5.</td><td>Ans. (b) DELETE Command</td><td>1</td></tr>
<tr><td>6.</td><td>Ans: (c) HomePage</td><td>1</td></tr>
<tr><td>7.</td><td>Ans. (c) None</td><td>1</td></tr>
<tr><td>8.</td><td>Ans. (a) Year . 0. at All the best</td><td>1</td></tr>
<tr><td>9.</td><td>Ans. (b) Statement 4</td><td>1</td></tr>
<tr><td>10.</td><td>Ans. (c) 512</td><td>1</td></tr>
<tr><td>11.</td><td>Ans: (d) PAN</td><td>1</td></tr>
<tr><td>12.</td><td>Ans. (b) W*
B*</td><td>1</td></tr>
<tr><td>13.</td><td>Ans. (a) Pickling</td><td>1</td></tr>
<tr><td>14.</td><td>Ans. (b) DISTNICT</td><td>1</td></tr>
<tr><td>15.</td><td>Ans. Topology</td><td>1</td></tr>
<tr><td>16.</td><td>Ans. (a) Mycur.fetch()</td><td>1</td></tr>
<tr><td>17.</td><td>Ans. (c) A is True but R is False</td><td>1</td></tr>
<tr><td>18.</td><td>Ans. (c) A is True but R is False</td><td>1</td></tr>
<tr><td colspan="3">SECTION-B</td></tr>
<tr><td>19.</td><td>(i) (a) IP-Internet Protocol
(b) URL- Uniform Resource Locator (1/2 mark for each)
(ii)VoIP is used to transfer audio (voice) and video over internet(1 mark)
OR
(i) Advantage: The network remains operational even if one of the nodes stopsworking. (1 mark for any ONE advantage)
(ii)<table><tr><th>Hub</th><th>Switch</th></tr><tr><td>Hub is a passive Device</td><td>Switch is an active device</td></tr><tr><td>Hub broadcasts messages to all nodes</td><td>Switch sends the messages to intended node.</td></tr></table>Or any other valid difference between the two.
(1 mark for ANY ONE difference)</td><td>2</td></tr>
<tr><td>20.</td><td><u>def</u> reverse(num):
rev = 0
<u>while</u> num > 0:
<u>rem</u> == num %10
rev = rev*10 + rem
num = num//10
<u>return</u> rev
print(reverse(1234))
(½ Mark for each correction up to any 4 corrections)</td><td>1+1 =2</td></tr>
</table>

21.	`def INDEX_LIST(L):` `  indexList=[]` `  for i in range(len(L)):` `  if L[i]!=0:` `  indexList.append(i)` `  return indexList` *(½ mark for correct function header* *1 mark for correct loop* *1 mark for correct if statement* *½ mark for return statement)* Note: Any other relevant and correct code may be marked OR def Count_How_Many(Data, item): count=0 for n in Data: if(n==item): count+=1 print(item, " found ", count, "times") d=[101,102,107,105,102,103,104,102] i=102 Count_How_Many(d,i) **or** any other correct logic	1+1=2
22.	['H', 'A', 'P', 'P', 'Y'] ['B', 'I', 'R', 'T', 'H', 'D', 'A', 'Y']	2
23.	(i) str="PYTHON@LANGUAGE" print(str[2: :]) (ii) d=dict( ) OR (i) s="LANGUAGE" l=list(s) (ii) t=tuple( )	2
24.	COUNT(*) returns the count of all rows in the table, whereas COUNT (COLUMN_NAME) is used with Column_Name passed as argument and counts the number of non-NULL values in a column that is given as argument. Here discount column is having 4 rows with NULLvalues. OR Use KVS; (1/2 mark) Show Tables; (1/2 mark) Desc EMPLOYEE; (1/2 MARK) Select * from EMPLOYEE; (1/2 MARK)	2
25.	{20: 3, 19: 3, 17: 2}	2
	SECTION-C	
26.	Vande 0 Bharat 9 Train 1 vANDE00bHARAT99tRAIN11 (3 marks for correct answer. Partial marks may be given for partially correct answer.)	3
27.	(1 mark for each correct output)	1*3 =3

(i)

sports
SOCCER
TENNIS
CRICKET
ATHLETICS
SNOOKER

ii)

Sports	MAX(salary)
SOCCER	50000
TENNIS	20000
CRICKET	15000
ATHLETICS	12000

iii)

pname	sports	salary
VIRAT	CRICKET	15000
NEERAJ	ATHLETICS	12000
SANIA	TENNIS	5000

28.

```
def displaywords ():
    file = open('data.txt','r')
    st=file.read()
    lst=st.split()
    for k in lst:
        if len[k] >3:
            print(k, end=" ")
    file.close()
displaywords ()# Call the displaywords
```

(½ mark for function header, 1 mark for opening file,
1 mark for correct for loop and condition,½ mark for closing file)

OR

```
def count_lines():
    f=open("student.txt",'r')
    rows=f.readlines()
    end_y=not_y=0

    for rec in rows:
        if(rec[-1]=='y'):
            end_y+=1
        else:
            not_y+=1
    print("The number of lines in file are", len(rows))
    print("The number of lines ending with alphabet 'y' are:",end_y)
    print("The number of lines not ending with alphabet 'y' are:",not_y)
count_lines()
#call the function
```

(½ mark for function header, 1 mark for opening file,
1 mark for correct for loop and condition,½ mark for closing file)

3

29.

(i) SELECT EMP_NAME, BASIC+DA+HRA+NPS AS "GROSS SALARY" FROM SALARY;
(ii)UPDATE SALARY SET DA=DA+0.03*BASIC;
(iii)ALTER TABLE SALARY DROP COLUMN EMP_DESIG;

1*3 =3

30.

```
data = [1,2,3,4,5,6,7,8]
stack = []
def push(stack, data):
    for x in data:
        if x % 2 == 0:
            stack.append(x)
def pop(stack):
    if len(stack)==0:
        return "stack empty"
    else:
        return stack.pop()
push(stack, data)
print(pop(stack))
```

(½ mark should be deducted for all incorrect syntax. Full marks to beawarded for any other logic that produces the correct result.)

3

SECTION-D

31.

i)SELECT SUM (PERIODS), SUBJECT FROM SCHOOL GROUP BY SUBJECT ;
ii) SELECT MIN(EXPERIENCE), MAX(CODE) FROM SCHOOL;
iii)SELECT TEACHERNAME, GENDER FROM SCHOOL, ADMIN WHERE DESIGNATION = 'COORDINATOR' AND SCHOOL.CODE=ADMIN.CODE;
iv)SELECT COUNT(DISTINCT SUBJECT) FROM SCHOOL;
(1 mark for each correct query)

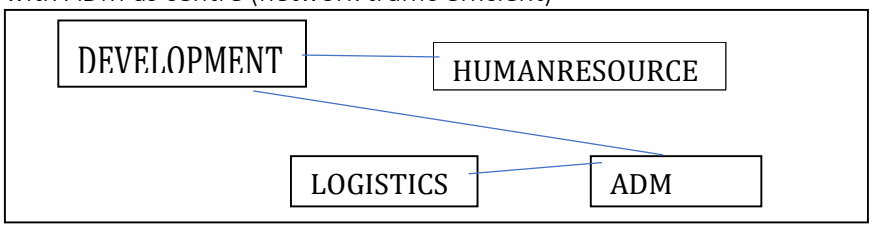
1*4 =4

32.

```
import csv
def Add_New():
        fout=open("playerdata.csv ","a",newline='\n')
        wr=csv.writer(fout)
        P_id=int(input("Enter Player Id :: "))
        P_name=input("Enter Player name :: ")
        P_runs=int(input("Enter price :: "))
        playerlist=[P-id,P_name,P_runs]
        wr.writerow(playerlist)
        fout.close()
def Display_Record():
        fin=open("playerdata.csv ","r")
        data=csv.reader(fin)
        found=False
        print("The Player Records are: ")
        for Rec in data:
                if int(rec[2])>5000:
                        found=True
                        print(rec[0],rec[1],rec[2])
        if found==False:
                print("Such Record not found")
Add_New():
Display_Record():
```

(½ mark for importing csv module)
(1 ½marks each for correct definition of Add_New() and Display_Record ())
(½ mark for function call statements)

2+2= 4

SECTION-E		
33.	i) ADM Block Justification- It has maximum number of computers. Reduce traffic. ii) wired medium is ethernet cables. Following bus (cable cost efficient) or star with ADM as centre (network traffic efficient)  iii) (a) Switches in all the blocks since the computers need to be connected to the network. (b) Repeaters between ADM and HUMANRESOURCE block& ADM and Logistics block. The reason being the distance is morethan 100m. iv) Modem should be placed in the Server building v) Optical Fiber cable connection	1*5=5
34.	(i) Full form of CSV is Coma Separated Value. pickle module is used for Binary files and csv module is used for importing csv files. (1+ ½ +½) ii)import pickle def Trace_Book(): fopen=open("library.dat ","r") data=pickle.load(fopen) found=False print("The Book Records are: ") for Rec in data: if (rec[2])<1000: found=True print(rec[0],rec[1],rec[2]) if found==False: print("Such Record not found") Trace_Book(): **OR** (i) (1 mark for each difference between text file and binary file) (ii)import pickle **def Get_Stud()**: Total = 0 Count_rec = 0 Count_age = 0 with open(" STUDENT.DAT", " rb") as F: while True: try: R=pickle.load(f) Count_rec = Count_rec+1 Total = Total+R[2] if R[2] > 18: print (R[1],"is of Age :",R[2]) Count_age + = 1 except: break if Count_age = =0 : print("There is no student who is greater than 18 year")	2+3=5

Get_Stud()

35. (i)Any one difference: 1+4=5

CANDIDATE KEY	ALTERNATE KEY
All attributes in a relation thathave potential to become a Primary key	All the leftover candidate keys after selecting the primary key

(ii)

```
import mysql.connector as BD
def Emp_Database():
    con=BD.connect(host="localhost", user="root", password="bharat",
                   database="TOUR")
    BDcursor=con.cursor()
    print("Travels at Hilly Area and the distance more than 1000 KM.:")
    BDcursor.execute("select * from TRAVELS WHERE Geo_Cond ='hilly area"
                     AND Distance<1000)
    TravelRec= BDcursor.fetchall()
    for rec in TravelRec:
        print(rec)
```

OR

(i)Any one difference:

PRIMARY KEY	UNIQUE KEY
There can be only one primary key in a table	There can be more than one unique keys in a table
The primary key cannot have null values	Unique can have null values

(ii)

```
import mysql.connector as cnt
def Emp_Database():
    con=cnt.connect(host="localhost", user="root", password="tiger",
                    database="company")
    mycursor= con.cursor()
    print("Display Employee whose age is more than 55 years:")
    mycursor.execute("select * from Emp where age>55")
    EmpRec= mycursor.fetchall()
    for rec in EmpRec:
        print(rec)
```

केंद्रीय विद्यालय संगठन, जयपुर संभाग

Kendriya Vidyalaya Sangathan, Jaipur Region

प्रथम प्री-बोर्ड परीक्षा 2023-24

First Pre-Board Exam 2023-24

कक्षा/Class: XII **विषय/Subject : Computer Science (083)**

समय : 3 घंटे पूर्णांक/**Max Marks: 70**

सामान्य निर्देश / General Instructions:

- Please check this question paper contains 35 questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.

खंड / SECTION-A		
प्रश्न सं Q. No.	**प्रश्न / Question**	अंक / Marks
1	State True or False: "Lexical unit is the smallest unit of any programming language"	1
2	Fill in the blank: _____command is used to remove the tuple from the table in SQL. (a) update (b) remove (c) alter (d) delete	1
3	What will be the output of the following statement: print ((30.0 // 4 + (8 + 3.0)) a. 14.75 b. 18.0 c. -18.0 d. Error	1
4	Select the correct output of the code: >>> Str= "BHASHA SANGAM @ 75" >>> S=Str.partition(" ") >>> print(S) a. (@ 75' 'BHASHA', ' ', 'SANGAM,) b. ('BHASHA', ' @', 'SANGAM , 75') c. ('', ' ', 'BHASHA SANGAM @ 75') d. ('BHASHA', ' ', 'SANGAM @ 75')	1

5	In MYSQL database, if a table, **Emp** has degree 10 and cardinality 5, and another table, **Dept** has degree 5 and cardinality 10, what will be the degree and cardinality of the Cartesian product of **Emp** and **Dept** ? a. 50,15 b. 15,50 c. 50,50 d. 15,15	1
6	Ankur wants to transfer songs from his mobile phone to his laptop. He uses Bluetooth Technology to connect two devices. Which type of network will be formed in this case? a. PAN b. LAN c. MAN d. WAN	1
7	Give the output: `dic1={'r':'red','g':'green','b':'blue'}` `for i in dic1:` `print (i, end =' ')` a. r g b b. R G B c. R B G d. red green blue	1
8	Consider the statements given below and then choose the correct output from the given options: `MN="Bharat @G20"` `print(MN[-2:2:-2])` Options: a. rt@2 b. 2@tr c. @G20 d. 02G@	1
9	Which of the following statement(s) would give an error after executing the following code? S="Welcome to KVS RO JAIPUR " # Statement 1 print(S) # Statement 2 S="Thank you" # Statement 3 S[0]= '$' # Statement 4 S=S+"Thank you" # Statement 5 (a) Statement 3 (b) Statement 4 (c) Statement 5 (d) Statement 4 and 5	1

10	What possible outputs(s) will be obtained when the following code is executed? `import random` `Signal=['Stop','Wait','Go']` `for K in range (2,0,-1):` `    R=random.randrange(K)` `    print(Signal[R], end='#')` options: a. Stop#Go# b. Wait#Stop# c. Go#Stop# d. Go#Wait#	1
11	Fill in the blank: …….is a communication methodology designed to deliver emails over Internet protocol. a. VIOP b. SMTP c. PPP d. HTTP	1
12	Consider the code given below and find correct output: `x=5` `def function1():` `  global x` `  y=x+x*2` `  print(y,end=",")` `x=7` `function1()` `print(x)` Output: a. 21 , 7 b. 15 , 5 c. 21 , 5 d. 15, 7	1

13	State whether the following statement is True or False: Exception handling can be done for both user-defined and built-in exceptions.	1
14	Which of the following statements is FALSE in reference to MySQL? a. It is an RDBMS. b. It is case sensitive. c. It is an open source. d. It is ideal for both small and large applications.	1
15	Fill in the blank: In case of_____switching, each information or message to be transmitted between sender and receiver is broken down into smaller pieces.	1
16	Which method is used to move the file pointer to a specified position.? a.tellg() b.tell() c.seek() d.seekg()	1
	Q17 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): Access mode 'a' opens a file for appending. Reasoning(R): The file pointer is at the end of the file if the file exists.	1
18	Assertion(A): A function is block of organized and reusable code that is used to perform a single, related action. Reasoning(R): Function provides better modularity for your application and a high degree of code reusability.	1

	खंड / **SECTION B**	
19	(i) Expand the following terms: SMTP, IMAP (ii) Give one difference between Active Hub and Passive Hub. OR (i) Define the term Protocol with respect to networks. (ii) How is Hub different from Switch?	1+1=2
20	Harsh has written a code to input a number and find a table of any number. His code is having errors. Rewrite the correct code and underline the corrections made. `def table():` `  n=int(("Enter number which table U need: ")` `  for i in (1,11):` `  print("Table of Enter no=",i*i)` `Table()`	2
21	Write a function countMy(SUBJECT) in Python, that takes the dictionary, SUBJECT as an argument and displays the names (in uppercase) of the subjects whose names are longer than 5 characters. For example, Consider the following dictionary SUBJECT={1:"Hindi",2:"Physics",3:"Chemistry",4:"cs",5:"Math"} The output should be: HINDI PHYSICS CHEMISTRY OR Write a function, lenLines(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 " let us learn Python", the tuple will have (3, 2, 5, 6)	2

22	Predict the output of the following code: `tuple1 = (11,22,33,44,55,66)` `list1 =list(tuple1)` `new_list = []` `for i in list1:` `  if i%2==0 :` `  new_list.append(i)` `  new_tuple = tuple(new_list)` `print(new_tuple)`	2
23	Write the Python statement for **each** of the following tasks using BUILT-IN functions/methods only: (i) To insert an element 100 at the Second position, in the list L1. (ii) To check whether all the characters in the string S1 are digits or not. OR How the pop( ) function is different from remove( ) function working with list in python ? Explain with example.	1+1= 2
24	Pooja wrote a query in SQL for student table but she is not getting desired result **`select * from student where fee = NULL;`** Rewrite the above query so that she gets desired result **OR** Categorize the following commands as DDL or DML: INSERT, ALTER, DROP, DELETE, UPDATE, CREATE	2
25	Predict the output of the following code: `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=' ')`	2

खंड / SECTION C

26 Predict the output of the Python code given below: **3**

```
def my_city (L,N):
    for i in range(0,N):
        if len(L)>4:
            L[i]=L[i]+L[i]
        else:
            L[i]=L[i]
sub=['Delhi','Jaipur','Agra','Surat','Mumbai','Bhopal']
my_city(sub,6)
print(sub)
```

27 Write the outputs of the SQL queries (a) to (c) based on the relation **Furniture** **1*3 = 3**

No	Itemname	Type	Dateofstock	Price	Discount
1	White lotus	Double Bed	23/02/2002	30000	25
2	Pink feather	Baby Cot	20/01/2002	7000	20
3	Dolphin	Baby Cot	19/02/2002	9500	20
4	Decent	Office Table	01/01/2002	25000	30
5	Comfort Zone	Double Bed	12/01/2002	25000	25
6	Donald	Baby Cot	24/02/2002	6500	15
7	Royal finish	Office Table	20/02/2002	18000	30
8	Royal tiger	Sofa	22/02/2002	31000	30
9	Econo sitting	Sofa	13/12/2001	9500	25
10	paradise	Dining Table	19/02/2002	11500	25
11	Wood Comfort	Double Bed	23/03/2003	25000	25
12	Old Fox	Sofa	20/02/2003	17000	20
13	Micky	Baby Cot	21/02/2003	7500	15

(a) SELECT Itemname FROM Furniture WHERE Type="Double Bed";

(b) SELECT Dateofstock FROM Furniture WHERE Type="Sofa" order by Dateofstock;

(c) SELECT Type,sum(Price) FROM Furniture group by Type;

28 Define a function SHOWWORD () in python to read lines from a text file STORY.TXT, and display those words, whose length is less than 5. **3**

OR

Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt

29	Consider the table Emp given below: **Table : EMP** **E_ID** | **Name** | **Desig** | **Salary** | **Allowance** E01 | Ramesh | Manager | 80000 | 5400 E02 | Kailash | Clerk | NULL | 2400 E03 | Rudra | Supervisor | 48000 | NULL E04 | Sakila | Clerk | 30000 | 2000 E05 | Prachi | Supervisor | NULL | 2800 Based on the given table, write SQL queries for the following: (i) Increase the salary by 10% of employees whose allowance is known. (ii) Display Name and Total Salary (sum of Salary and Allowance) of all employees. The column heading 'Total Salary' should also be displayed. (iii) Delete the record of employess who have salary greater than 40000.	1*3=3
30.	Mr.Abhishek has created a list of elements. Help him to write a program in python with functions, PushEl (S,element) and PopEl (S) to add a new element and delete an element from a List of element named 'S' considering them to act as push and pop operations of the Stack data structure . Push the element into the stack only when the element is divisible by 4. For eg:if L=[2,5,6,8,24,32] then stack content will be 32 <- Top 24 8	3

खंड / SECTION D

31 Consider the doctor and patient table and write the output of (i) to (iv) — 1*4= 4

Doctor

docid	Dname	Specialization	Outdoor
D1	MANISH	PHYSICIAN	MONDAY
D2	PARESH	EYE	FRIDAY
D3	KUMAR	ENT	SATURDAY
D4	AKASH	ENT	TUESDAY

Patient

Pid	Pname	did	Date_visit
P1	Lal singh	D2	2022-04-25
P2	Arjun	D1	2022-05-05
P3	Narender	D4	2022-03-13
P4	Mehul	D3	2022-07-20
P5	Naveen	D2	2022-05-18
P6	Amit	D1	2022-01-22

(I) select count(*) from patient where date_visit like '%2_';

(II) select specialization ,count(*) from doctor group by specialization;

(III) select a.dname, b.pname from doctor a, patient b where a.docid=b.did;

(IV) select dname from doctor,patient where docid=did and pname='Arjun';

32 A csv file " result.csv" contains record of student in following order — 4
[rollno, name, sub1,sub2,sub3,total]

Initially student total field is empty string as example data is given below

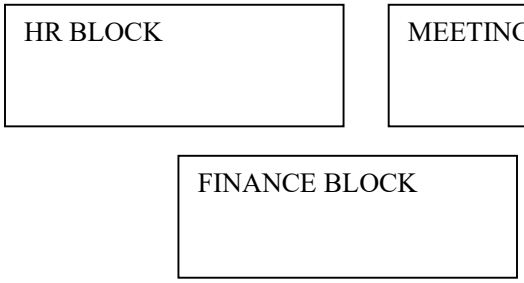
```
['1', 'Anil', '40', '34', '90', '']
['2', 'Sohan', '78', '34', '90', '']
['3', 'Kamal', '40', '45', '9', '']
```

A another file "final.csv" is created which reads records of "result.csv" and copy all records after calculating total of marks into final.csv. The contents of final.csv should be

```
['1', 'Anil', '40', '34', '90', '164']
['2', 'Sohan', '78', '34', '90', '202']
['3', 'Kamal', '40', '45', '9', '94']
```

(a) Define a function createcsv() that will create the result.csv file with the sample data given above.

(b) Define a function copycsv() that reads the result.csv and copy the same data after calculating total field into final.csv file.

	खंड / **SECTION E**	
33	M/s Computer Solutions is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below. **Physical locations of the blocks of M/s Computer Solutions**  **Block to block distance (in m)** **Block (From) Block (To) Distance** HR Block MEETING 110 HR Block Finance 40 MEETING Finance 80 **Expected number of computers** **Block Computers** HR 25 Finance 120 MEETING 90 (i) Which will be the most appropriate block, where **M/s Computer Solutions** should plan to install their server? (ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication. (iii) What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Bengalore with its London based office. • Satellite Link • Infrared • Ethernet (iv) Which of the following device will be suggested by you to connect each computer in each of the buildings? • Switch • Modem • Gateway (v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?	1*5= 5

34	(i) Differentiate between rb+ and wb+ file modes in Python. (ii) Consider a binary file "**employee.dat**" containing details such as **(empno, ename, salary).** Write a python function to display details of those employees who are earning between 20000 and 30000 (both values inclusive). **OR** (i) Differentiate between dump and load functions in binary files? (ii) Write a Python function in Python to search the details of the employees **[name, designation, salary]** whose salary is greater than 5000. The records are stored in the file "**emp.dat"**. consider each record in the file emp.dat as a list containing name, designation and salary.	2+3= 5
35	(i) How many candidate key and primary key a table can have in a Database? (ii) Manish wants to write a program in Python to create the following table named "EMP" in MYSQL database, ORGANISATION: Eno (Employee No)- integer , Ename (Employee Name) - string Edept (Employee Department)-string, Sal (salary)-integer Note the following to establish connectivity between Python and MySQL: Username – root , Password – admin , Host - localhost The values of fields eno, ename, edept and Sal has to be accepted from the user. Help Manish to write the program in Python to insert record in the above table.. **OR** (i) Differentiate between degree & cardinality key in RDBMS? (iii) Vihaan wants to write a program in Python to create the following table named "EMP" in MYSQL database, ORGANISATION: Eno (Employee No)- integer , Ename (Employee Name) - string Edept (Employee Department)-string, Sal (salary)-integer Note the following to establish connectivity between Python and MySQL: Username – root , Password – admin , Host - localhost Help Vihaan to write the program in Python to Alter the above table with new column named Bonus (int).	1+4= 5

Class XII

Computer Science (083)

Marking Scheme

Time Allowed: 3 hours **MM: 70**

Ques No	Question and Answers	Distribution of Marks	Total Marks
	SECTION A		
1	True	1 mark for correct answer	1
2	Option d delete	1 mark for correct answer	1
3	Option b 18	1 mark for correct answer	1
4	Option d ('BHASA', ' ', 'SANGAM@75')	1 mark for correct answer	1
5	Option b 15,50	1 mark for correct answer	1
6	Option a PAN	1 mark for correct answer	1
7	Option a `r g b`	1 mark for correct answer	1
8	Option b 2@tr	1 mark for correct answer	1

9	Option b Statement 4	1 mark for correct answer	1
10	Option b Wait#Stop#	1 mark for correct answer	1
11	Option b SMTP	1 mark for correct answer	1
12	Option a 21 7	1 mark for correct answer	1
13	True	1 mark for correct answer	1
14	Option b It is case sensitive	1 mark for correct answer	1
15	Packet	1 mark for correct answer	1
16	Option c `seek()`	1 mark for correct answer	1
17	Option a Both A and R are true but R is the correct explanation for A	1 mark for correct answer	1

[2]

18	Option a Both A and R are true but R is the correct explanation for A	1 mark for correct answer	1
	SECTION B		
19	(i) SMTP – Simple Mail Transfer Protocol IMAP – Internet Message Access Protocol (ii) Active hubs amplify the incoming electric signal, whereas passive hubs do not amplify the electric signal. (Any other valid difference may be considered) **OR** (i) A network protocol is an established set of rules that determine how data is transmitted between different devices in the same network. (ii) Hub is an electronic device that connects several nodes to form a network and redirect the received information to all the nodes in a broadcast mode. Whereas Switch is an intelligent device that connects several nodes to form a network and redirect the received information only to the intended node(s). (Any other valid difference may be considered)	½ mark for each correct expansion 1 mark for any one correct difference 1 mark for correct definition 1 mark for any one correct difference	1+1=2
20	`def table ():` `  n=int (input ("Enter number which table U need: "))` `  for i in range (1,11):` `  print ("able of Enter no=",i*n)` `table ()`	½ mark for each correction made	2

21	SUBJECT={1:"Hindi",2:"Physics",3:"Chemistry",4:"CS",5:"MATH"} def countMy (SUBJECT): for S in SUBJECT.values(): if len(S)>5: print(S.upper()) countMy() OR def lenLines (STRING): t=() L=STRING.split() for line in L: length=len(line) t=t+(length,) return t Note: Any other correct logic may be marked	½ mark for correct function header ½ mark for correct loop ½ mark for correct if statement ½ mark for displaying the output ½ mark for correct function header ½ mark for using split() ½ mark for adding to tuple ½ mark for return statement	2
22	(22, 44, 66)	1½ mark for each correct digit ½ mark for parenthesis	2

23	(i) L1.insert(1,100) (ii) S1.isdigit() OR pop() function removes the lastvalue and returns the same. >>>L=[10,20,30,20] >>> L.pop () 20 The *remove()* method removes thefirst matching value from the list. >>>L.remove (20) [10, 30, 20]	1 mark for each correct statement 1 mark for correct difference and 1 mark for suitable example	1+1=2
24	SQL Command to add primary key: select * from student where fee IS NULL **OR** DDL : CREATE, ALTER DROP DML: INSERT UPDATE DELETE	2 mark for correct Command 1 mark for each correct DDL & DML Categorized commands	2
25	-22 # 756 # -9 # 230 #	½ mark for each correct number and ½ mark for each correct # symbol	2
	SECTION C		
26	['DelhiDelhi', 'JaipurJaipur', 'AgraAgra', 'SuratSurat', 'MumbaiMumbai', 'BhopalBhopal']	½ mark for each correct output	3

27	(a) **Item Name** White lotus Comfort Zone Wood Comfort (b) **Dateofstock** 13/12/2001 22/02/2002 20/02/2003 (c) **Type** **Sum(Price)** Double Bed 80000 Baby Cot 30500 Office Table 43000 Sofa 57500 Dining Table 11500	1 mark for each correct output.	1*3=3
28	def SHOWWORD () : c=0 file=open('STORY.TXT,'r') line = file.read() word = line.split() for w in word: if len(w)<5: print(w) file.close() OR def count H( ): f = open ("para.txt" , "r") lines =0 L=f. readlines () for i in L: if i [0]== 'H': lines +=1 print ("No. of lines are: " , lines)	(½ Mark for opening the file) (½ Mark for reading line and/or splitting) (½ Mark for checking condition) (½ Mark for printing word)	3
29	(i) UPDATE EMP SET Salary=Salary + Salary*0.10 WHERE Allowance IS NOT NULL; (ii) SELECT Name, Salary + Allowance AS "Total Salary" FROM EMP; (iii) DELETE FROM EMP WHERE Salary>40000;	1 mark for each correct query	1*3=3

30

```
N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]
def PUSHEl(S,N):
    S.append(N)
def POPEl(S):
    if S!=[]:
        return S.pop()
    else:
        return None
ST=[]
for k in N:
    if k%4==0:
        PUSHEl(ST,k)
while True:
   if ST!=[]:
       print(POPEl(ST),end=" ")
   else:
       break
```

1½ marks for each Push and Pop operation

3

SECTION D

31

(i)

3

(ii)

1

1

2

(iii)

Dname	Pname
PARESH	Lal singh
MANISH	Arjun
AKASH	Narender
KUMAR	Mehul
PARESH	Naveen
MANISH	Amit

(iv)

Manish

1 mark for each correct output

1*4=4

[7]

32	 `import csv` `def createcsv():` `  f=open("result.csv","w", newline="")` `  w=csv.writer(f)` `  w.writerow([1,'Anil',40,34,90,""])` `  w.writerow([2,'Sohan',78,34,90,""])` `  w.writerow([3,'Kamal',40,45,9,""])` `  f.close()` `import csv` `def copycsv():` `  f=open("result.csv","r")` `  f1=open("final.csv","w",newline="")` `  w1=csv.writer(f1)` `  r=csv.reader(f)` `  for x in r:` `  x[5]=int(x[2])+int(x[3])+int(x[4])` `  w1.writerow(x)` `f.close()` `f1.close()`	½ mark for accepting data correctly ½ mark for opening and closing file ½ mark for writing headings ½ mark for writing row ½ mark for opening and closing file ½ mark for reader object ½ mark for print heading ½ mark for printing data	4
	SECTION E		
33	(i) M/s Computer Solutions should install its server in finance block as it is having maximum number of computers. (ii) Any suitable layout (iii) Satellite Link. (iv) Switch. (v) LAN	1 Mark of each correct answer	1*5=5

34	(i) **rb+** Opens a file for both reading and writing in binary format. (+) the file pointer will be at the beginning of the file. **wb+** Opens a file for both reading and writing in binary format. Overwrites the existing file If the file exists. If the file does not exist, creates a new file for reading or writing. (ii) ``` def Readfile(): s=open("Employee.dat" , "rb+") try: while True: r=pickle.load(s) if r[2]>=20000 and r[2]<=30000: print(r) except: print("end of file") ``` OR (i) In pickle module, dump () method is used to convert (pickling) Python objects for writing data in a binary file Whereas the load () function is used to read data from a binary file or file object. (ii) ``` import pickle as p L=[] with open('emp.dat','rb') as f: L=p.load(f) for r in L: if r[2]>5000: print("name=",r[0]) print("designation=",r[1]) print("salary=",r[2]) ``` Note: Any other correct logic may be marked	1 mark for <u>each correct</u> difference ½ mark for correctly opening and closing files ½ mark for correct loop ½ mark for correct split 1 mark for correctly reading / writing data ½ mark for printing data	2+3=5

[9]

35	(i) A table can only have one primary key, but it can have multiple candidate key in a database. (any suitable example) (ii) import mysql.connector mydb=mysql.connector.connect(host="localhost",user="root",passwd="admin",database="SCHOOL") mycursor=mydb.cursor() while 1: ch=int(input("enter -1 to exit / any other no to insert record into student table")) if ch==-1: break eno=int(input("Enter Employee no")) ename=input("Enter Employee Name") edept=input("Enter dept name") sal=int(input("Enter salary")) mycursor.execute("insert into EMP values ('"+str(eno)+"','"+ ename+"','" +edept + "','"+str(sal)+"')") mydb.commit() for x in mycursor: print(x) **OR** **(i)** **Degree:** The total number of attributes which in the relation is called the degree of the relation. **Cardinality:** Total number of rows present in the Table. (any suitable example) (ii) import mysql.connector mydb=mysql.connector.connect(host="localhost",user="root",passwd="admin",database="SCHOOL") mycursor=mydb.cursor() mycursor.execute("alter table emp add (bonus int(3))") mycursor.execute("desc emp") for x in mycursor: print(x) Note: Any other correct logic may be marked	½ mark for correct definition ½ mark for correct example ½ mark for importing correct module 1 mark for correct connect() ½ mark for correctly accepting the input 1 ½ mark for correctly displaying data	1+4=5

[10]