OSDAV Public School, Kaithal
Half Yearly Examination,2024
Class :XII **SET- A**
Subject : Computer Science

Time: 3 Hrs . **M.M. :70**

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 3 questions (31 to 33). Each question carries 5 Marks.
Section E, consists of 2 questions (34 to 35). Each question carries 4 Marks.

Q.N.	Questions	Marks
	Section A(18X1=18)	
1	State True or False: "In a Python program, if a break statement is given in a nested loop, itterminates the execution of all loops in one go."	**1**
2	In a table in MYSQL database, an attribute A of datatype varchar(15)has the value "osdav". The attribute Bof datatype char(20)has value"osdav public school". How many characters are occupied by attribute A and attribute B? a. 15,17 b. 5,20 c. 5,17 d. 5,19	**1**
3	What will be the output of the following statement: print(3-2**3**2+99/11) a. -52 b. 52.0 c. -500.0 d.-518	**1**
4	Identify the output from the following options. sub = "PYTHON" for i in sub: print (i," ",end= " ") (a) PYTHON (b) P,Y,T,H,O,N (c) None (d) P Y T H O N	**1**
5	In MYSQL database, if a table, Alpha has degree 4 and cardinality 5, and another table, Beta has degree 5 and cardinality 6, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a. 4,6 b. 20,11 c. 9,30 d. 20,30	**1**
6	Sam wants to transfer pictures from her mobile phone to her senior in Delhi. She uses modem to connect two devices. Which type of networkwill be formed in this case? a. PAN b. LAN c. MAN d. WAN	**1**
7	Which of the following will delete key-value pair for key = "Red" from a dictionary D1? **a.** delete D1("Red") b. del.D1["Red"] c.del D1["Red"] d.D1.del["Red"]	**1**
8	Consider the statements given below and then choose the correct output from the given options: pride="#G20 Presidency" print(pride[-2:2:-2]) Options: ndsr b.ceieP0 c.ceieP d.yndsr	**1**
9	Which of the following statement(s) would give an error during execution of the following	**1**

	code?
	str = “osdav”
	print(str) #Statement 1
	print(str[3]*2) #Statement 2
	str[4]=”m” #Statement 3
	print(str[3]+”ab”) #Statement 4
	Options:
	Statement 1 b. Statement 2 c. Statement 3 d.Statement 4	

10	Consider the following code and find the valid output import math import random print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) What could be the possible outputs out of the given four choices? i) 2 3 4 ii) 9 4 4 iii)16 16 16 iv)2 4 9	**1**
11	Fill in the blank: The modem at the sender’s computer end acts as a . Model b.Modulator c. Demodulator d.Convertor	**1**

12	Consider the code given below:
	b=100
	def test(a):
	_____ # Missing Statement
	b=b+a
	print (a.b)
	test (10)
	print (b)
	Which of the following statements should be given in the blank for#Missing Statement, if the output produced is 120?
	Options:
	a. global a b. global b=100 c.global b d.global a=100
		1

13	State whether the following statement is True or False: An exception may be raised even if the program is syntactically correct.	**1**
14	_____ is a set of one or more attributes taken collectively to uniquely identify a record. a) Primary Key b) Foreign key c) Super key d) Candidate key	**1**
15	Fill in the blank: In case of____switching, before a communication starts, adedicated path is identified between the sender and the receiver.	**1**
16	Which of the following functions tells the position of file pointer a.flush() b.tell() c.seek() d.offset()	**1**
	Q17 and 18 are ASSERTION AND REASONING based questions. Markthe 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	**1**
17	Assertion(A): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory.	**1**
18	Assertion (A): List has indices to access the elements.	**1**

	Reason (R): The list is an ordered data type. A. A is True but R is False B. A is False but R is True C. Both A and R are True and R is correct explanation of A D. Both A and R are True and A is correct explanation of R	
	Section B(7X2=14)	
19	(i) Expand the following terms: SLIP , ISP (ii) Give one difference between HTTP and HTTPS. OR **(i)** Define the term baud rate with respect to networks. **(ii)** How is TCP/IP works?	**2**
20	The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made. define revNumber (num) rev=0 rem=0 While num>0 rem = = num %10 rev = rev*10 + rem num = num//10 return rev Print (revNumber (1234))	**2**
21	Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are starting with "D" For example, Consider the following dictionary PLACES={1:"Delhi",2:"London",3:"Paris",4:"NewYork",5:"Doha"} The output should be:DELHI DOHA OR Write a function, lenWords(STRING), that takes a string as an argumentand returns a tuple containing word's length even. For example, if the string is "Come let us have some fun", the tuple will have (4,2,4)	**2**

22	Predict the output of the following code:
	s1="csiplearninghub.com"
	s2 =" "
	for x in s1:
	if(x=="s" or x=="n" or x=="p"):
	s2 + =x
	print(s2,end =" ")
		2

23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To delete 12 from the given list L1. (ii) To check whether a string named, message ends with a full stop or not. OR A list named Stuage stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age(mode) value from the given list.	**2**
24	Ms. Shalini has just created a table named "Employee" containing columns Ename, Department	**2**

	and Salary.After creating the table, she realized that she has to change the name of column Department to block column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee. There after, write the command to insert the following record in the table: EmpId- 999 Ename- Shweta Block: Production Salary: 26900 OR Zack is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category. After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Zack write the commands to complete both the tasks.	
25	Predict the output of the following code: def Changer (P, 2=10) : P=P/Q Q=P%Q return P A=400 B=20 A=Changer (A, B) print (A, B, sep='$') B=Changer (B) print (A,B, sep='$'.,end='###')	**2**
	Section C(6X3=18)	
26	Write a function in Python to read a text file, Alpha.txt and display those lines which ends with the word 'You'. OR Write a function, alphaCount() in Python that counts and displays the number of alphabets in the text file named Poem.txt.	**3**

27	Predict the output of the Python code given below:
	I=0
	while I<len(Text1):
	if Text1[I]>="0" and Text1[I]<="9":
	Val=int(Text1[I])
	Val=Val+1
	Text2=Text2+ str(Val)
	elif Text1[I]>="A"and Text1[I]<="Z":
	Text2=Text2+Text1[I+1]
	else:
	Text2=Text2 +"*"
	I+=1
	print(Text2)
		3

28	Consider the table CLUB given below and write the output of the SQLqueries that follow. **I.** SELECT COUNT(DISTINCT SPORTS) FROM CLUB; II. SELECT CNAME, SPORTS FROM CLUB WHERE DOAPP<"2006-04-30" AND CNAME LIKE "AM%"; III. SELECT CNAME, AGE, PAY FROM CLUB WHEREGENDER = "MALE" AND SPORTS="CRICKET"**;**	**3**

CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP
5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27
4687	SHYAM	37	MALE	CRICKET	1300	2004-04-15
1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007-06-18
1622	AMRIT	28	MALE	KARATE	1000	2007-09-05
1256	AMINA	36	FEMALE	CHESS	1100	2003-08-15
1720	MANJU	33	FEMALE	KARATE	1250	2004-04-10
2321	VIRAT	35	MALE	CRICKET	1050	2005-04-30

29 A list, `NList` contains following record as list elements: **3**

`[City, Country, distance from Delhi]`

Each of these records are nested together to form a nested list. Write thefollowing user defined functions in Python to perform the specified operations on the stack named `travel`**.**

(i) Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are in India and distance is greater than 1700 km from Delhi.

(ii) Pop_element(): It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.

For example: If the nested list contains the following data:

NList=[["New York", "U.S.A.", 11734],["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194],["London", "England", 6693],["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]]

The stack should contain:

['Naypyidaw', 'Myanmar'],['Dubai', 'UAE'],['Columbo', 'Sri Lanka']

The output should be:

['Columbo', 'Sri Lanka']

['Dubai', 'UAE']

['Naypyidaw', 'Myanmar']

Stack Empty

30 Consider the table `Personal` given below: **3**

Table: Personal

P_ID	Name	Desig	Salary	Allowance
P01	Rohit	Manager	89000	4800
P02	Kashish	Clerk	NULL	1600
P03	Mahesh	Superviser	48000	NULL
P04	Salil	Clerk	31000	1900
P05	Ravina	Superviser	NULL	2100

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

(i) Change the Desig as Teacher where desig ="clerk"

(ii) Display Name and Total Salary (sum of Salary and Allowance) of all personals. The column heading 'Total Salary' should also be displayed.

(iii) Delete the record of personals who have salary greater than 25000

Section D(5X3=15)

31 Allen institute is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings - admin,engineering,business,media **5**

Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

a)Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.

b) Which network device will be used to connect computers in each block toform a local area network?

c) Which block, in Chennai Campus should be made the server? Justify youranswer.

d) Which fast and very effective wireless transmission medium should referably be used to connect the head office at DELHI with thecampus in CHENNAI?

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

32 (i) Differentiate between r+ and w+ file modes in Python. **1+4=5**

(ii) Consider a file, `SPORT.DAT`, containing records of the followingstructure:
`[SportName, TeamName, No_Players]`

Write a function, `copyData()`, that reads contents from the file `SPORT.DAT` and copies the records with Sport name as "**`Basket Ball`**" to the file named `BASKET.DAT` The function should return the total number of records copied to the file `BASKET.DAT`.

or

(i) How are text files different from binary files?

(ii)A Binary file, CINEMA.DAThas the following structure:
{MNO:[MNAME, MTYPE]}
Where MNO – Movie Number, MNAME– Movie Name, MTYPEis movie Type
Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

33 (i)Kabir wants to write a program in Python to insert the following recordin the table named Studentin MYSQL database, SCHOOL: **5**

- rno(Roll number)- integer, name(Name) – string,
- DOB (Date of birth) – Date, Fee – float

Note the following to establish connectivity between Python andMySQL:

- Username – root Password - tiger

Host - localhostThe values of fields rno, name, DOBand feehas to be accepted fromthe user. Help Kabir to write the program in Python.

OR

(i) Give one difference between alternate key and candidate key.

(ii) Sartaj has created a table named Studentin MYSQL database, SCHOOL:

- rno(Roll number)- integer,name(Name) - string
- DOB (Date of birth) – Date, Fee – float

Note the following to establish connectivity between Python andMySQL:

Username – root ,Password – tiger, Host – localhost

Sartaj, now wants to display the records of students whose fee is more than5000. Help Sartaj to write the program in Python

(ii) Define the term Domain with respect to RDBMS. Give one example to support your answer.

Section E(4X2=8)

34 Shivansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named `Result.csv`, to store the results of students in different sports events. The structure of `Result.csv` is : **4**

```
[St_Id, St_Name, Game_Name, Result]
```

Where

`St_Id` is Student ID (integer)

`ST_name` is Student Name (string)

`Game_Name` is name of game in which student is participating(string) Result is result of the game whose value can be either `'Won'`, `'Lost'`or `'Tie'`

For efficiently maintaining data of the event, Shivansh wants to write thefollowing user defined functions:

`Accept()` – to accept a record from the user and add it to the file `Result.csv`. The column headings should also be added on top of the csvfile.

`wonCount()` – to count the number of students who have won any event.As a Python expert, help him complete the task.

35 Consider the tables PRODUCT and BRAND given below: **4**

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

Table: BRAND

BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

Write SQL queries for the following:

(i) Display product name and brand name from the tables PRODUCT and BRAND.

(ii) Display the structure of the table PRODUCT.

(iii) Display the average rating of Medimix and Dove brands

(iv) Display the name, price, and rating of products in descending orderof rating.

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First Terminal Examination,2024
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General Instructions:-

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The paper is divided into 4 Sections- A, B, C, D and E.
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Section D, consists of 3 questions (31 to 33). Each question carries 5 Marks.
Section E, consists of 2 questions (34 to 35). Each question carries 4 Marks.

Q.N.	Questions	Marks
	Section A(18X1=18)	
1	State True or False: "In a Python program, if a break statement is given in a nested loop, it terminates the execution of all loops in one go." **Ans:** **False** **Reason — In a Python program, if a break statement is given in a nested loop, it only terminates the execution of the innermost loop where the break statement is encountered. It does not affect the outer loops or any remaining loops in the nested structure.**	**1**
2	In a table in MYSQL database, an attribute A of datatype varchar(15)has the value "osdav". The attribute of datatype char(20)has value"osdav public school". How many characters are occupied by attribute A and attribute B? a. 15,17 b. 5,20 c. 5,17 d. 5,19 **Ans :-** b. 5,20	**1**
3	What will be the output of the following statement: print(3-2**3**2+99/11) a. -52 b. 52.0 c. -500.0 d.-518 Ans: c. -500.0	**1**
4	Identify the output from the following options. sub = "PYTHON" for i in sub: print (i," ",end= " ") (a) PYTHON (b) P,Y,T,H,O,N (c) None (d) P Y T H O N **Ans: (c)** None as answer should be P Y T H O N	**1**
5	In MYSQL database, if a table, Alpha has degree 4 and cardinality 5, and another table, Beta has degree 5 and cardinality 6, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a. 4,6 b. 20,11 c. 9,30 d. 20,30 Ans : c. 9,30	**1**
6	Sam wants to transfer pictures from her mobile phone to her senior in Delhi. She uses modem to connect two devices. Which type of network will be formed in this case?	**1**

	a. PAN b. LAN c. MAN d. WAN Ans: d. WAN	
7	Which of the following will delete key-value pair for key = "Red" from a dictionary D1? **a.** delete D1("Red") b. del.D1["Red"] c.del D1["Red"] d.D1.del["Red"] Ans: c.del D1["Red"]	**1**
8	Consider the statements given below and then choose the correct output from the given options: pride="#G20 Presidency" print(pride[-2:2:-2]) Options: ndsr b.ceieP0 c.ceieP d.yndsr Ans: b ceieP0	**1**

9	Which of the following statement(s) would give an error during execution of the following code?
	str = "osdav"
	print(str) #Statement 1
	print(str[3]*2) #Statement 2
	str[4]="m" #Statement 3
	print(str[3]+"ab") #Statement 4
	Options:
	Statement 1 b. Statement 2 c. Statement 3 d.Statement 4
	Ans: c. Statement 3
		1

10	Consider the following code and find the valid output import math import random print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) print(str(int(math.pow(random.randint(2,4),2)))) What could be the possible outputs out of the given four choices? i) 2 3 4 ii) 9 4 4 iii)16 16 16 iv)2 4 9 Ans: ii) 9 4 4 iii)16 16 16	**1**
11	Fill in the blank: The modem at the sender's computer end acts as a . a.Model b.Modulator c. Demodulator d.Convertor Ans: b.Modulator	**1**

12	Consider the code given below:
	b=100
	def test(a):
	_____ # Missing Statement
	b=b+a
	print (a.b)
	test (10)
	print (b)
	Which of the following statements should be given in the blank for#Missing Statement, if the output produced is 110?
	Options:
	a. global a b. global b=100 c.global b d.global a=100
	Ans: c.global b
		1

13	State whether the following statement is True or False: An exception may be raised even if the program is syntactically correct. **Ans: True**	**1**
14	_____ is a set of one or more attributes taken collectively to uniquely identify a record. a) Primary Key b) Foreign key c) Super key d) Candidate key	**1**

	Ans: c) Super key	
15	Fill in the blank: In case of____switching, before a communication starts, adedicated path is identified between the sender and the receiver. **Ans: Circuit switching**	**1**
16	Which of the following functions tells the position of file pointer `a.flush()  b.tell()  c.seek()  d.offset()` **Ans:** `b.tell()`	**1**
	Q17 and 18 are ASSERTION AND REASONING based questions. Markthe 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	**1**
17	Assertion(A): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory. **Ans:(d)**	**1**
18	Assertion (A): List has indices to access the elements. Reason (R): The list is an ordered data type. A. A is True but R is False B. A is False but R is True C. Both A and R are True and R is correct explanation of A D. Both A and R are True and A is correct explanation of R **Ans:C**	**1**
	Section B(7X2=14)	
19	(i) Expand the following terms: SLIP , ISP Ans:- SLIP : serial Line internet protocol ISP: Internet Service Provider (ii) Give one difference between HTTP and HTTPS. **Ans: HTTPS is just HTTP with encryption**. The primary distinction between these two names is that HTTPS is more secure than HTTP since it uses TLS (SSL) encryption. OR **(i)** Define the term baud rate with respect to networks. **The baud rate is the rate at which information is transferred in a communication channel** **(ii)** How is TCP/IP works? TCP/IP model breaks down data into *packets* and then reassembles the packets into the complete message on the other end. Sending the data in small packets makes it easier to maintain accuracy versus sending all the data at once.	**2**

20	The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made. define revNumber (num) rev=0 rem=0 While num>0 rem = = num %10 rev = rev*10 + rem num = num//10 return rev Print (revNumber (1234)) **Corrected one** **def** revNumber (num): rev=0 rem=0 **while** num>**0:** rem = = num %10 rev = rev*10 + rem num = num//10 return rev **print** (revNumber (1234))	**2**

21	Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are starting with "D"
	For example, Consider the following dictionary
	PLACES={1:"Delhi",2:"London",3:"Paris",4:"NewYork",5:"Doha"}
	The output should be:DELHI
	DOHA
	def countNow(PLACES):
	for a in PLACES:
	if PLACES[a][0]="D":
	print(PLACES[a].upper())
	
	OR
	Write a function, lenWords(STRING), that takes a string as an argumentand returns a tuple containing word's length even.
	For example, if the string is "Come let us have some fun", the
	tuple will have (4,2,4)
	def lenWords(STRING):
	t=()
	w=string.split():
	for a in w:
	if len(a)%2==0 :
	t=t+(a,)
	print(t)
		2

22	Predict the output of the following code:
	s1="csiplearninghub.com"
	s2 =" "
	for x in s1:
	if(x=="s" or x=="n" or x=="p"):
	s2 + =x
	print(s2,end =" ")
		2

	ans: spnn	
23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To delete 12 from the given list L1.=> L1.remove(12) (ii) To check whether a string named, message ends with a full stop or not. =>message.endwith(".") OR A list named Stuage stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age(mode) value from the given list. **Import statistics** **Statictics.mode(stuage)**	**2**
24	Ms. Shalini has just created a table named "Employee" containing columns Ename, Department and Salary.After creating the table, she realized that she has to change the name of column Department to block column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee. There after, write the command to insert the following record in the table: EmpId- 999 Ename- Shweta Block: Production Salary: 26900 Alter table Employee change department block; Alter table Employee add eid integer primary key; Insert into table employee values(999,"Shweta"," Production ", 26900); OR Zack is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category. After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Zack write the commands to complete both the tasks. Alter table Sports drop category; Alter table Sports add typesports string not null.	**2**
25	Predict the output of the following code: def Changer (P, Q=10) : P=P/Q Q=P%Q return P A=400 B=20 A=Changer (A, B) print (A, B, sep='$') B=Changer (B) print (A,B, sep='$',end='###') **Ans:** **20.0$20** **20.0$2.0###**	**2**

	Section C(6X3=18)	

26	Write a function in Python to read a text file, Alpha.txt and display those lines which ends with the word 'You'.
	def readtxt():
	f= open("Alpha.txt ","r")
	str=.readlines()
	for a in str:
	w=a.split()
	if w[-1]="You":
	print(a)
	OR
	Write a function, alphaCount() in Python that counts and displays the number of alphabets in the text file named Poem.txt.
	def alphaCount() :
	c=0
	f= open("Poem.txt ","r")
	str=.read()
	for a in str:
	if a.isalpha():
	c+=1
	print("no of alphabets",c)
		3

27	Predict the output of the Python code given below:
	Text1="IND-23"
	Text2=" "
	I=0
	while I<len(Text1):
	if Text1[I]>="0" and Text1[I]<="9":
	Val=int(Text1[I])
	Val=Val+1
	Text2=Text2+ str(Val)
	elif Text1[I]>="A"and Text1[I]<="Z":
	Text2=Text2+Text1[I+1]
	else:
	Text2=Text2 +"*"
	I+=1
	print(Text2)
	Ans: ND-*34
		3

28	Consider the table CLUB given below and write the output of the SQLqueries that follow. **I.** SELECT COUNT(DISTINCT SPORTS) FROM CLUB; II. SELECT CNAME, SPORTS FROM CLUB WHERE DOAPP<"2006-04-30" AND CNAME LIKE "AM%"; III. SELECT CNAME, AGE, PAY FROM CLUB WHEREGENDER = "MALE" AND SPORTS="CRICKET"**;**	**3**

CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP
5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27
4687	SHYAM	37	MALE	CRICKET	1300	2004-04-15
1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007-06-18
1622	AMRIT	28	MALE	KARATE	1000	2007-09-05
1256	AMINA	36	FEMALE	CHESS	1100	2003-08-15
1720	MANJU	33	FEMALE	KARATE	1250	2004-04-10
2321	VIRAT	35	MALE	CRICKET	1050	2005-04-30

Ans(i) 4

(ii)cname sports
Amrita chess
Amina chess

(iii)

Name	age	pay
Sham	37	1300
Virat	35	1050

29 A list, `NList` contains following record as list elements:
`[City, Country, distance from Delhi]`
Each of these records are nested together to form a nested list. Write thefollowing user defined functions in Python to perform the specified operations on the stack named `travel`.

(i) Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are in India and distance is greater than 1700 km from Delhi.

(ii) Pop_element(): It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.

```
travel = [ ]
def Push_element (NList) :
       for L in NList:
             if L[1] != "India" and L[2]<3500:
                    travel.append([L[0],L[1]])

def Pop_element ():
   while len(travel):
      print (travel.pop())
   else:
      print ("Stack Empty")
```

Just mention L[2]>1700 and l[1]==india

For example: If the nested list contains the following data:
NList=[["New York", "U.S.A.", 11734],["Naypyidaw", "Myanmar", 3219],
["Dubai", "UAE", 2194],["London", "England", 6693],["Gangtok", "India", 1580],
["Columbo", "Sri Lanka", 3405]]
The stack should contain:
['Naypyidaw', 'Myanmar'],['Dubai', 'UAE'],['Columbo', 'Sri Lanka']
The output should be:
['Columbo', 'Sri Lanka']
['Dubai', 'UAE']

3

['Naypyidaw', 'Myanmar']
Stack Empty

30 Consider the table `Personal` given below: **3**

Table: Personal

P_ID	Name	Desig	Salary	Allowance
P01	Rohit	Manager	89000	4800
P02	Kashish	Clerk	NULL	1600
P03	Mahesh	Superviser	48000	NULL
P04	Salil	Clerk	31000	1900
P05	Ravina	Superviser	NULL	2100

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

(i) Change the Desig as Teacher where desig =”clerk”
Update personal set desig=”Tecaher” where desig=”clerk”

(ii) Display Name and Total Salary (sum of Salary and Allowance) of all personals. The column heading ‘Total Salary’ should also be displayed.
Select name, salary +allowance as “Total salary” from personal;

(iii) Delete the record of personals who have salary greater than 25000
Delete from personal where salary>25000;

Section D(5X3=15)

31 Allen institute is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings - admin,engineering,business,media **5**

Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

a)Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.

b) Which network device will be used to connect computers in each block toform a local area network?=>switch

c) Which block, in Chennai Campus should be made the server? Justify youranswer.
Admin block due to 80-20 rule

d) Which fast and very effective wireless transmission medium should referably be used to connect the head office at DELHI with thecampus in CHENNAI?=> satellite

e) Is there a requirement of a repeater in the given cable layout? Why/Why not
No,as distance is too less

32 Differentiate between r+ and w+ file modes in Python. **1+4=5**

r+ mode	w+ mode
Primary function is reading.	Primary function is writing.
If the file does not exist, it results in an error.	If the file does not exist, it creates a new file.

(ii) Consider a file, `SPORT.DAT`, containing records of the followingstructure: `[SportName, TeamName, No_Players]`

Write a function, `copyData()`, that reads contents from the file `SPORT.DAT` and copies the records with Sport name as "**`Basket Ball`**" to the file named `BASKET.DAT` The function should return the total number of records copied to the file `BASKET.DAT`.

```
def copyData():
f1= open ("SPORT.DAT", "rb")
f2= open ("BASKET.DAT", "wb")
 cnt=0
try:
    while True:
        data = pickle.load(f1)
        print (data)
        if data[0] ="Basket Ball":
            pickle.dump (data, f1)
             cnt+=1
  except:
        f1..close()
        f2.close()
        return cnt
```

(i) How are text files different from binary files?
At the user level, the primary difference between binary and text files is text files store data in human-readable format, and binary files are stored in binary form, i.e., 0s and 1s

(ii)A Binary file, CINEMA.DAThas the following structure:
{MNO:[MNAME, MTYPE]}
Where MNO – Movie Number, MNAME– Movie Name, MTYPEis movie Type
Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

```
def Searchtype (mtype) :
            fObj = open("CINEMA.DAT", "rb")
            try:
                    while True:
                            data = pickle.load(fObj)
                            if data[2] == mtype:
                               print ("Movie number:",data[0])
                               print ("Movie Name:",data[1])
                               print ("Movie Type:",data[2])
except EOFError:
          fObj.close ()
```

Change function name as findtype in place of searchtype

33 (i)Kabir wants to write a program in Python to insert the following recordin the table named Studentin MYSQL database, SCHOOL: **5**

- rno(Roll number)- integer, name(Name) – string,
- DOB (Date of birth) – Date, Fee – float

Note the following to establish connectivity between Python andMySQL:

- Username – root Password – tiger

Host - localhostThe values of fields rno, name, DOBand feehas to be accepted fromthe user. Help Kabir to write the program in Python.

```
import mysql.connector as mysql
con1 = mysql.connect (host="localhost", user="root", password="tiger", database="sample2023")
mycursor=con1.cursor()
rno = int (input ("Enter Roll Number:: "))
name = input(*Enter the name:: ")
DOB = input ("Enter date of birth::")
fee= float (input ("Enter Fee:: "))
query = "INSERT into student values{{},'{}','{}',{})".format (rno, name, DOB, fee)
mycursor.execute (query)
con1.commit()
print ("Data added successfully")
con1.close()
```

Just change the name of database as School

(iii) Define the term Domain with respect to RDBMS. Give one exampleto support your answer.

Ans:Domain is a term used in relational database management systems (RDBMS) to describe the data type and constraints of a column in a table. A domain defines the range of possible values that a column can store in a database .

OR

(i) Give one difference between alternate key and candidate key.

Candidate key: A column or a set of columns can be called as candidate key if they identify each row of a table uniquely. ... Alternate key: There can be more than one keys which can identify each row of the table uniquely. One of them is defined as primary key and rest of them is called alternate keys of the table

(ii) Sartaj has created a table named Studentin MYSQL database, SCHOOL:

- rno(Roll number)- integer,name(Name) - string
- DOB (Date of birth) – Date, Fee – float

Note the following to establish connectivity between Python andMySQL:

Username – root ,Password – tiger, Host – localhost

Sartaj, now wants to display the records of students whose fee is more than5000. Help Sartaj to write the program in Python

```
import mysql.connector as mysql
con1 = mysql.connect (host="localhost", user="root", password="tiger", database="sample2023")
mycursor=con1.cursor()
query = "SELECT * FROM student where fee>{}".format (5000)
mycursor.execute(query)
data=mycoursor.fetchall()
for rec in data:
print (rec)
con1.close()
```

Change Database as school

Section E(4X2=8)

34 Shivansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named `Result.csv`, to store the results of students in different sports events. The structure of `Result.csv` is : **4**

`[St_Id, St_Name, Game_Name, Result]`

Where

`St_Id` is Student ID (integer)

`ST_name` is Student Name (string)

`Game_Name` is name of game in which student is participating(string) Result is result of the game whose value can be either `'Won', 'Lost'` or `'Tie'`

For efficiently maintaining data of the event, Shivansh wants to write thefollowing user defined functions:

`Accept()` – to accept a record from the user and add it to the file `Result.csv`. The column headings should also be added on top of the csvfile.

`wonCount()` – to count the number of students who have won any event.As a Python expert, help him complete the task.

```
def Accept():
    sid-int (input ("Enter Student ID "))
    sname=input ("Enter Student Name ")
    game =input ("Enter name of game ")
    res=input ("Enter Result")
     headings=["Student ID", "Student Name", " Game Name", "Result"]
   data=[sid, sname, game, res]
   f=open('Result.csv', 'a', newline='')
   csvwriter-csv.writer (f)
   csvwriter.writerow (headings)
   csvwriter.writerow(data)
   f.close()
def wonCount():
   c=0
   f=open('Result.csv', 'r')
   csvreader=csv.reader (f)
   for x in head:
```

```
        if x[3]=="WON":
            c+=1
    print("total winners",c)
        f.close()
```

35 Consider the tables PRODUCT and BRAND given below: **4**

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

Table: BRAND

BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

Write SQL queries for the following:

(i) Display product name and brand name from the tables PRODUCT and BRAND.

(ii) Display the structure of the table PRODUCT.

(iii) Display the average rating of Medimix and Dove brands

(iv) Display the name, price, and rating of products in descending orderof rating.

(i)Select PName,Bname from Product,Brand where product.bid=Brand.Bid

(ii) desc product;

(iii)select average(rating) from product,brand where bname="medimix" or bname="dove" and product.bid=Brand.Bid;

(iv)Select name, price, rating from product order by rating;

OSDAV Public School, Kaithal
Half Yearly Examination (2024-25)
Class :XII
Subject : Computer Science

SET-B

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

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.**

Q. N.	Question	Marks
	SECTION A	
1	State True or False: "In a dictionary is an unordered data type accessed by keys only."	1
2	In a table in MYSQL database, an attribute A of datatype varchar(20)has the value "Keshav". The attribute Bof datatype char(20)has value"Meenakshi". How many characters are occupied by attribute A and attribute B? a. 20,6 b. 6,20 c. 9,6 d. 6,9	1
3	What will be the output of the following statement: print(3-2**2**3+99/11) a. 244 b. 244.0 c. -244.0 d. Error	1
4	Select the correct output of the code: print("abc. DEF".capitalize()) Options: a) Abc. def b) abc. Def c) Abc. Def d) ABC. DEF	1
5	In MYSQL database, if a table, Alpha has degree 5 and cardinality 3, and another table, Beta has degree 3 and cardinality 5, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a. 5,3 b. 8,15 c. 3,5 d. 15,8	1
6	Riya wants to transfer pictures from her mobile phone to her laptop. She 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	If a dictionary has 3 elements ,which of the following will delete last key-value pair from a dictionary D1? a.D1.pop() b. D1.popitem() c. D1.POP(3) d.D1.popitem(3)	1
8	Fill in the blank: The modem at the reciever's computer end acts as a . a.Model b.Modulator c. Demodulator d.Convertor	1
9	Which of the following is not a standard exception in Python? a) NameError b) IOError c) AssignmentError d) ValueError	1

10	Which of the following statement(s) would give an error during execution of the following code?
	tup = (20,30,40,50,80,79)
	print(tup) #Statement 1
	print(tup[3]+50) #Statement 2
	print(max(tup)) #Statement 3
	tup[4]=80 #Statement 4
	Options:
	a. Statement 1 b. Statement 2 c. Statement 3 d.Statement 4	

11	Consider the following code and find the valid output import random heights=[10,20,30,40,50] beg=random.randint(0,2) end=random.randint(2,4) for x in range(beg,end): print(heights[x],end='@') (a) 30 @ (b) 10@20@30@40@50@ (c) 20@30 (d) 40@30@	1
12	Consider the statements given below and then choose the correct output from the given options: pride="#TECHFEST1.0 OSDAV" print(pride[-2:2:-2]) Options: a.Do01SFC b.#EHETSA c. AS .TEH d.TCFS10OD	1
13	Consider the code given below and state output x=15 def f1(): global x x+=1 print(x) f1() print("hello") Options: a) error b) hello c) 16 d) 16 hello	1
14	Which of the following statements is FALSE about keys in a relational database? a. Any candidate key is eligible to become a primary key. b. A primary key uniquely identifies the tuples in a relation. c. A candidate key that is not a primary key is a foreign key. d. A foreign key is an attribute whose value is derived from the primary key of another relation.	1
15	Fill in the blank: In case of _____ switching,computer networks to transmit data as packets, or small pieces of data, instead of reserving a dedicated communication channel for the entire duration of a transmission	1
16	Which of the following functions changes the position of file pointer and returns its new position? a.flush() b.tell() c.seek() d.offset()	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): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory.	1
18	Assertion(A): Break statement changes in normal flow of execution. Reason (R): Break statement terminates the current loop. A. Both A and R are true and R is the correct explanation of A. B. Both A and R are true but R is not the correct explanation of A. C. A is True but R is False D. A is False but R is True	1
	SECTION B	
19	Expand the following terms: POP3 , URL Give one difference between XML and HTML. OR Define the term bandwidth with respect to networks. Define circuit switching?	1+1=2

20	Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.
	`x= int("Enter value of x:")`
	`for in range [0,10]:`
	`  if x=y`
	`  print("They are equal")`
	`  else:`
	`  Print( "They are unequal")`
		2

21	Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are longer than 5 characters. For example, Consider the following dictionary PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"} The output should be: LONDON NEW YORK OR Write a function, lenWords(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string. For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3)	2

22	Predict the output of the following code:
	`s1="csiplearninghub.com"`
	`c=0`
	`for x in s1:`
	`  if(x!="l"):`
	`  c=c+1`
	`print(c)`
		2

23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To last element from the list L1. (ii) To check whether a string named, message starts with a full stop/ period or not. OR A list named studentAge stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display median value from the given list.	1 1

24 | Ms. Shalini has just created a table named "Employee" containing columns Ename, Department and Salary.After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee.Thereafter, write the command to insert the following record in the table:
EmpId- 999,Ename- Shweta Department: Production Salary: 26900

OR

Zack is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category.
After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Zack write the commands to complete both the tasks. | 2

25 | Predict the output of the following code: | 2

```
def Changer(P,Q=10):
    P=P/Q
    Q=P%Q
    return P

A=200
B=20
A=Changer(A,B)
print(A,B, sep='$')
B=Changer(B)
print(A,B, sep='$', end='###')
```

SECTION C

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

```
Text1="IND-23"
Text2=""
I=0
while I<len(Text1):
    if Text1[I]>="0" and Text1[I]<="9":
        Val = int(Text1[I])
        Val = Val + 1
        Text2=Text2 + str(Val)
    elif Text1[I]>="A" and Text1[I]<="Z":
        Text2=Text2 + (Text1[I+1])
    else:
        Text2=Text2 + "*"
    I+=1
print(Text2)
```

27 | Consider the table CLUB given below and write the output of the SQLqueries that follow. | 1*3=3

CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP
5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27
4687	SHYAM	37	MALE	CRICKET	1300	2004-04-15
1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007-06-18
1622	AMRIT	28	MALE	KARATE	1000	2007-09-05
1256	AMINA	36	FEMALE	CHESS	1100	2003-08-15
1720	MANJU	33	FEMALE	KARATE	1250	2004-04-10
2321	VIRAT	35	MALE	CRICKET	1050	2005-04-30

i)SELECT DISTINCT SPORTS FROM CLUB;
ii)SELECT CNAME, SPORTS FROM CLUB WHERE DOAPP<"2006-04-30" AND CNAME LIKE "%NA";
iii)SELECT CNAME, AGE, PAY FROM CLUB WHERE GENDER = "MALE" AND PAY BETWEEN 1000 AND 1200;

28 Write a function in Python to read a text file, Alpha.txt and displays those words which begin with the character 'y" 3

OR

Write a function, digCount() in Python that counts and displays the number of digits in the text file named Poem.txt.

29 Consider the table `Personal` given below: 1

`Table: Personal`

P_ID	Name	Desig	Salary	Allowance
P01	Rohit	Manager	89000	4800
P02	Kashish	Clerk	NULL	1600
P03	Mahesh	Superviser	48000	NULL
P04	Salil	Clerk	31000	1900
P05	Ravina	Superviser	NULL	2100

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

(i) Increase the salary by 5% of personals whose allowance is known.

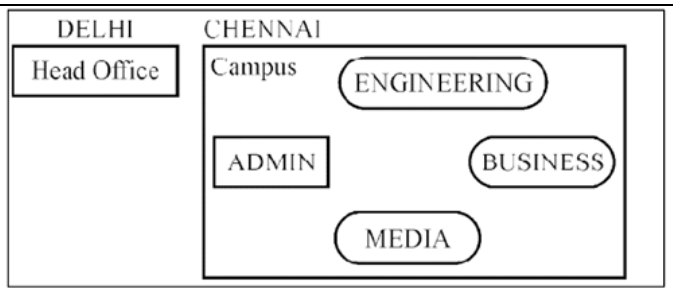
(ii) Display Name and Total Salary (sum of Salary and Allowance) ofall personals. The column heading 'Total Salary' should also be displayed.

(iii) Delete the record of personals who have salary greater than 25000

30 A list, NList contains following record as list elements:
[City, Country, distance from Delhi]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel.
Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi.
Pop_element(): It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.
For example: If the nested list contains the following data:
NList=[["New York", "U.S.A.", 11734],["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194],["London", "England", 6693],["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]]
The stack should contain:
['Naypyidaw', 'Myanmar'],['Dubai', 'UAE'],['Columbo', 'Sri Lanka']
The output should be:
['Columbo', 'Sri Lanka'],['Dubai', 'UAE'],['Naypyidaw', 'Myanmar'] Stack Empty

Section D(5X3=15)

31 Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA



Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.
b) Which network device will be used to connect computers in each block to form a local area network?
c) Which block, in Chennai Campus should be made the server? Justify your answer.
d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI?
e) Suggest a device/software to be installed in the CHENNAI Campus to take care of data security.

32 (i) Differentiate between r+ and w+ file modes in Python. 2+3=5

(ii) Consider a file, SPORT.DAT, containing records of the following structure: [SportName, TeamName, No_Players]
Write a function, copyData(), that reads contents from the file SPORT.DAT and copies the records with Sport name as "Basket Ball" to the file named BASKET.DAT. The function should return the total number of records copied to the file BASKET.DAT.

OR (Option for part (ii) only) A Binary file, CINEMA.DAT has the following structure: {MNO:[MNAME, MTYPE]} Where MNO – Movie Number MNAME – Movie Name MTYPE is Movie Type
Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

33	(i) Define the term Domain with respect to RDBMS. Give one example to support your answer. (ii) Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SCHOOL: • rno(Roll number)- integer • name(Name) - string • DOB (Date of birth) – Date • Fee – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password – tiger • Host - localhost • The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.	1+4
	Section E(4X2=8)	
34	Consider the tables PRODUCT and BRAND given below: Table: PRODUCT PCode | PName | UPrice | Rating | BID P01 | Shampoo | 120 | 6 | M03 P02 | Toothpaste | 54 | 8 | M02 P03 | Soap | 25 | 7 | M03 P04 | Toothpaste | 65 | 4 | M04 P05 | Soap | 38 | 5 | M05 P06 | Shampoo | 245 | 6 | M05 Table: BRAND BID | BName M02 | Dant Kanti M03 | Medimix M04 | Pepsodent M05 | Dove Write SQL queries for the following: (i) Display product name and brand name from the tables PRODUCT and BRAND. (ii) Display the structure of the table PRODUCT. (iii) Display the average rating of Medimix and Dove brands (iv) Display the name, price, and rating of products in descending order of rating.	4
35	Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named Result.csv, to store the results of students in different sports events. The structure of Result.csv is : [St_Id, St_Name, Game_Name, Result] where St_Id is Student ID (integer) ST_name is Student Name (string) Game_Name is name of game in which student is participating(string) Result is result of the game whose value can be either 'Won', 'Lost' or 'Tie'. For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions: Accept() – to accept a record from the user and add it to the file Result.csv. The column headings should also be added on top of the csv file. wonCount() – to count the number of students who have won any event. As a Python expert, help him complete the task.	4

OSDAV Public School, Kaithal
Half Yearly Examination (2024-25)
Class :XII
Subject : Computer Science

SET-B

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

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.**

Q. N.	Question	Marks
	SECTION A	
1	State True or False: "In a dictionary is an unordered data type accessed by keys only." Ans: True	1
2	In a table in MYSQL database, an attribute A of datatype varchar(20)has the value "Keshav". The attribute Bof datatype char(20)has value"Meenakshi". How many characters are occupied by attribute A and attribute B? a. 20,6 b. 6,20 c. 9,6 d. 6,9 Ans: b. 6,20	1
3	What will be the output of the following statement: print(3-2**2**3+99/11) a. 244 b. 244.0 c. -244.0 d. Error Ans: c. -244.0	1
4	Select the correct output of the code: print("abc. DEF".capitalize()) Options: a) Abc. def b) abc. Def c) Abc. Def d) ABC. DEF Ans:a Abc.def	1
5	In MYSQL database, if a table, Alpha has degree 5 and cardinality 3, and another table, Beta has degree 3 and cardinality 5, what will be the degree and cardinality of the Cartesian product of Alpha and Beta? a. 5,3 b. 8,15 c. 3,5 d. 15,8 Ans: b. 8,15	1
6	Riya wants to transfer pictures from her mobile phone to her laptop. She 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 Ans:a. PAN	1
7	If a dictionary has 3 elements ,which of the following will delete last key-value pair from a dictionary D1? a.D1.pop() b. D1.popitem() c. D1.POP(3) d.D1.popitem(3) Ans:a.D1.pop()	1

8	Fill in the blank: The modem at the reciever's computer end acts as a . a.Model b.Modulator c. Demodulator d.Convertor Ans: c. Demodulator	1
9	Which of the following is not a standard exception in Python? a) NameError b) IOError c) AssignmentError d) ValueError Ans: c) AssignmentError	1

10	Which of the following statement(s) would give an error during execution of the following code?
	tup = (20,30,40,50,80,79)
	print(tup) #Statement 1
	print(tup[3]+50) #Statement 2
	print(max(tup)) #Statement 3
	tup[4]=80 #Statement 4
	Options:
	a. Statement 1 b. Statement 2 c. Statement 3 d.Statement 4
	Ans: d.Statement 4	

11	Consider the following code and find the valid output import random heights=[10,20,30,40,50] beg=random.randint(0,2) end=random.randint(2,4) for x in range(beg,end): print(heights[x],end='@') (a) 30 @ (b) 10@20@30@40@50@ (c) 20@30 (d) 40@30@ Ans:C	1
12	Consider the statements given below and then choose the correct output from the given options: pride="#TECHFEST1.0 OSDAV" print(pride[-2:2:-2]) Options: a.Do01SFC b.#EHETSA c. AS .TEH d.TCFS10OD Ans:c AS .TEH	1
13	Consider the code given below and state output x=15 def f1(): global x x+=1 print(x) f1() print("hello") Options: a) error b) hello c) 16 **d) 16 hello**	1
14	Which of the following statements is FALSE about keys in a relational database? a. Any candidate key is eligible to become a primary key. b. A primary key uniquely identifies the tuples in a relation. c. A candidate key that is not a primary key is a foreign key. d. A foreign key is an attribute whose value is derived from the primary key of another relation.	1

15	Fill in the blank: In case of __Packet_____ switching,computer networks to transmit data as packets, or small pieces of data, instead of reserving a dedicated communication channel for the entire duration of a transmission	1
16	Which of the following functions changes the position of file pointer and returns its new position? a.flush() b.tell() c.seek() d.offset()	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): List is an immutable data type Reasoning(R): When an attempt is made to update the value of an immutable variable, the old variable is destroyed and a new variable is created by the same name in memory. Ans:d	1
18	Assertion(A): Break statement changes in normal flow of execution. Reason (R): Break statement terminates the current loop. A. Both A and R are true and R is the correct explanation of A. B. Both A and R are true but R is not the correct explanation of A. C. A is True but R is False D. A is False but R is True Both Assertion (A) and Reason (R) are correct, and Reason (R) correctly explains Assertion (A): A "break" statement does indeed change the normal flow of execution by prematurely terminating the current loop, thus altering the program's execution path	1
	SECTION B	
19	Expand the following terms: POP3 , URL =>Post office protocol,Uniform resource Locater Give one difference between XML and HTML. HTML is used to create and display web pages, while XML is used to store, transmit, and reconstruct data OR Define the term bandwidth with respect to networks. In networking, bandwidth is the maximum rate at which data can be transferred over a network connection. Define circuit switching? Circuit switching is a network configuration that establishes a physical connection between two endpoints for the duration of a communication session	1+1=2

20	Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.
	`x= int("Enter value of x:")`
	`for in range [0,10]:`
	`  if x=y`
	`  print("They are equal")`
	`  else:`
	`  Print( "They are unequal")`
	x=int(input("enete vaue of x:"))
	for i in range (0,10):
	if x= =y:
	print("They are equal")
	else:
	print("They are unequal")
		2

21	Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are longer than 5 characters. For example, Consider the following dictionary
	PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"}
	The output should be:
	LONDON NEW YORK
	def countNow(PLACES):
	for a in PLACES:
	if len(PLACES[a])>=5:
	print(PLACES[a].upper())
	
	OR
	Write a function, lenWords(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string.
	For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3)
	def lenWords(STRING):
	t=()
	w=string.split():
	for a in w:
	t=t+(len(a),)
	print(t)
		2

22	Predict the output of the following code:
	`s1="csiplearninghub.com"`
	`c=0`
	`for x in s1:`
	`if(x!="l"):`
	`c=c+1`
	`print(c)`
	Ans 18
		2

23	Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: (i) To last element from the list L1. L1.pop() (ii) To check whether a string named, message starts with a full stop/ period or not. Message.satrtswith(".") OR A list named studentAge stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display median value from the given list. **Import statistics** **Statictics.median(studentage)**	1 1

24	Ms. Shalini has just created a table named "Employee" containing columns Ename, Department and Salary.After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee.Thereafter, write the command to insert the following record in the table: EmpId- 999,Ename- Shweta Department: Production Salary: 26900 Alter table Employee add eid integer primary key; Insert into table employee values(999,"Shweta"," Production ", 26900); OR Zack is working in a database named SPORT, in which he has created a table named "Sports" containing columns SportId, SportName, no_of_players, and category. After creating the table, he realized that the attribute, category has to be deleted from the table and a new attribute TypeSport of data type string has to be added. This attribute TypeSport cannot be left blank. Help Zack write the commands to complete both the tasks Alter table Sports drop category; Alter table Sports add typesports string not null. .	2

25	Predict the output of the following code:
	`def Changer(P,Q=10):`
	`  P=P/Q`
	`  Q=P%Q`
	`  return P`
	
	`A=200`
	`B=20`
	`A=Changer(A,B)`
	`print(A,B, sep='$')`
	`B=Changer(B)`
	`print(A,B, sep='$', end='###')`
	10.0$20
	10.0$2.0###
		2

	SECTION C	

26	Predict the output of the Python code given below:
	`Text1="IND-23"`
	`Text2=""`
	`I=0`
	`while I<len(Text1):`
	`  if Text1[I]>="0" and Text1[I]<="9":`
	`  Val = int(Text1[I])`
	`  Val = Val + 1`
	`  Text2=Text2 + str(Val)`
	`  elif Text1[I]>="A" and Text1[I]<="Z":`
	`  Text2=Text2 + (Text1[I+1])`
	`  else:`
	`  Text2=Text2 + "*"`
	`  I+=1`
	`print(Text2)`
	
	ND-*34
		3

27	Consider the table CLUB given below and write the output of the SQLqueries that follow.	1*3=3

CID	CNAME	AGE	GENDER	SPORTS	PAY	DOAPP

5246	AMRITA	35	FEMALE	CHESS	900	2006-03-27
4687	SHYAM	37	MALE	CRICKET	1300	2004-04-15
1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007-06-18
1622	AMRIT	28	MALE	KARATE	1000	2007-09-05
1256	AMINA	36	FEMALE	CHESS	1100	2003-08-15
1720	MANJU	33	FEMALE	KARATE	1250	2004-04-10
2321	VIRAT	35	MALE	CRICKET	1050	2005-04-30

i)SELECT DISTINCT SPORTS FROM CLUB;

CHESS
CRICKET
VOLLEYBALL
KARATE

ii)SELECT CNAME, SPORTS FROM CLUB WHERE DOAPP<"2006-04-30" AND CNAME LIKE "%NA";

CNAME	SPORTS
AMINA	CHESS

iii)SELECT CNAME, AGE, PAY FROM CLUB WHERE GENDER = "MALE" AND PAY BETWEEN 1000 AND 1200;

CNAME	AGE	PAY
MEENA	23	1000
AMRIT	28	1000
AMINA	36	1100
VIRAT	35	1050

28 Write a function in Python to read a text file, Alpha.txt and displays those words which begin with the character 'y" 3

```
def  readtxt():
        f= open("Alpha.txt ","r")
        str=.readlines()
        for a in str:
              w=a.split()
               for i in w:
                    if i[0]="Y":
                    print(a)
```

OR

Write a function, digCount() in Python that counts and displays the number of digits in the text file named Poem.txt.

```
def  digCount():
          c=0
        f= open("Poem.txt ","r")
        str=.read()
        for a in str:
              if a.isdigits():
                    c+=1
        print("no of alphabets",c)
```

29

Consider the table `Personal` given below:

`Table: Personal`

P_ID	Name	Desig	Salary	Allowance
P01	Rohit	Manager	89000	4800
P02	Kashish	Clerk	NULL	1600
P03	Mahesh	Superviser	48000	NULL
P04	Salil	Clerk	31000	1900
P05	Ravina	Superviser	NULL	2100

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

(i) Increase the salary by 5% of personals whose allowance is known.

Update personal set salary+=salary*.05where **Allowance** ="NULL"

(ii) Display Name and Total Salary (sum of Salary and Allowance) ofall personals. The column heading 'Total Salary' should also be displayed.

Select name, salary +allowance as "Total salary" from personal;

(iii) Delete the record of personals who have salary greater than 25000

Delete from personal where salary>25000;

30

A list, NList contains following record as list elements:
[City, Country, distance from Delhi]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel.
Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi

```
travel = [ ]
def Push_element (NList) :
       for L in NList:
             if L[1] != "India" and L[2]<3500:
                    travel.append([L[0],L[1]])

def Pop_element ():
   while len(travel):
      print (travel.pop())
   else:
      print ("Stack Empty")
```

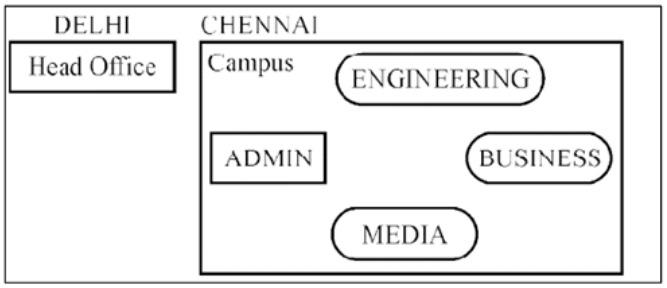
Pop_element(): It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.
For example: If the nested list contains the following data:
NList=[["New York", "U.S.A.", 11734],["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194],["London", "England", 6693],["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]]
The stack should contain:
['Naypyidaw', 'Myanmar'],['Dubai', 'UAE'],['Columbo', 'Sri Lanka']
The output should be:
['Columbo', 'Sri Lanka'],['Dubai', 'UAE'],['Naypyidaw', 'Myanmar'] Stack Empty

Section D(5X3=15)

31

Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings

– ADMIN, ENGINEERING, BUSINESS and MEDIA



Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.
star

b) Which network device will be used to connect computers in each block to form a local area network? => Switch

c) Which block, in Chennai Campus should be made the server? Justify your answer.
Admin block due to 80-20 rule

d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI? => Satellite

e) Suggest a device/software to be installed in the CHENNAI Campus to take care of data security. Firewall

32 (i) Differentiate between r+ and w+ file modes in Python — 2+3=5

r+ mode	w+ mode
Primary function is reading.	Primary function is writing.
If the file does not exist, it results in an error.	If the file does not exist, it creates a new file.

(ii) Consider a file, SPORT.DAT, containing records of the following structure:
[SportName, TeamName, No_Players]
Write a function, copyData(), that reads contents from the file SPORT.DAT and copies the records with Sport name as “Basket Ball” to the file named

BASKET.DAT. The function should return the total number of records copied to the file BASKET.DAT.

```
def copyData():
f1= open ("SPORT.DAT", "rb")
f2= open ("BASKET.DAT", "wb")
 cnt=0
try:
   while True:
        data = pickle.load(f1)
        print (data)
        if data[0] ="Basket Ball":
              pickle.dump (data, f1)
               cnt+=1
  except:
        f1..close()
        f2.close()
        return cnt
```

OR (Option for part (ii) only) A Binary file, CINEMA.DAT has the following structure: {MNO:[MNAME, MTYPE]} Where MNO – Movie Number MNAME – Movie Name MTYPE is Movie Type

Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.

```
def Searchtype (mtype) :
            fObj = open("CINEMA.DAT", "rb")
            try:
                   while True:
                          data = pickle.load(fObj)
                          if data[2] == mtype:
                             print ("Movie number:",data[0]
                             print ("Movie Name:",data[1])
                             print ("Movie Type:",data[2])
except EOFError:
          fObj.close ()
```

Change function name as findtype in place of searchtype

33 (i) Define the term Domain with respect to RDBMS. Give one example to support your answer. 1+4

Ans:Domain is a term used in relational database management systems (RDBMS) to describe the data type and constraints of a column in a table. A domain defines the range of possible values that a column can store in a database .

(ii) Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SCHOOL:

- rno(Roll number)- integer
- name(Name) - string
- DOB (Date of birth) – Date
- Fee – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password – tiger
- Host - localhost
- The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.

```
import mysql.connector as mysql
con1 = mysql.connect (host="localhost", user="root", password="tiger", database="sample2023")
mycursor=con1.cursor()
rno = int (input ("Enter Roll Number:: "))
name = input(*Enter the name:: ")
DOB = input ("Enter date of birth::")
fee= float (input ("Enter Fee:: "))
query = "INSERT into student values{{},'{}','{}',{})".format (rno, name, DOB, fee)
mycursor.execute (query)
con1.commit()
print ("Data added successfully")
con1.close()
```

Section E(4X2=8)

34 Consider the tables PRODUCT and BRAND given below: 4

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

Table: BRAND

BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

Write SQL queries for the following:

(i) Display product name and brand name from the tables PRODUCT and BRAND.

(ii) Display the structure of the table PRODUCT.

(iii) Display the average rating of Medimix and Dove brands

(iv) Display the name, price, and rating of products in descending order of rating.

(i)Select PName,Bname from Product,Brand where product.bid=Brand.Bid

(ii) desc product;

(iii)select average(rating) from product,brand where bname=”medimix” or bname=”dove” and product.bid=Brand.Bid;

(iv)Select name, price, rating from product order by rating;

35	Vedansh is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named Result.csv, to store the results of students in different sports events. The structure of Result.csv is : [St_Id, St_Name, Game_Name, Result] where St_Id is Student ID (integer) ST_name is Student Name (string) Game_Name is name of game in which student is participating(string) Result is result of the game whose value can be either 'Won', 'Lost' or 'Tie'.
	For efficiently maintaining data of the event, Vedansh wants to write the following user defined functions: Accept() – to accept a record from the user and add it to the file Result.csv. The column headings should also be added on top of the csv file. wonCount() – to count the number of students who have won any event. As a Python expert, help him complete the task.
	def Accept():
	sid-int (input ("Enter Student ID "))
	sname=input ("Enter Student Name ")
	game =input ("Enter name of game ")
	res=input ("Enter Result")
	headings=["Student ID", "Student Name", " Game Name", "Result"]
	data=[sid, sname, game, res]
	f=open('Result.csv', 'a', newline='')
	csvwriter-csv.writer (f)
	csvwriter.writerow (headings)
	csvwriter.writerow(data)
	f.close()
	def wonCount():
	c=0
	f=open('Result.csv', 'r')
	csvreader=csv.reader (f)
	for x in head:
	if x[3]=="WON":
	c+=1
	print(“total winners”,c)
	f.close()
		4