Class: XII Session: 2022-23

Computer Science (083)

Marking Scheme

SECTION A		
1.	c. a b c=100 200 300	1
2.	(b) **	1
3.	c) Error	1
4.	(a) (6.0, 27.0)	1
5.	(d) ("f","o","obar")	1
6.	(a) Beginning of file	1
7.	(c) references	1
8.	(d) ALTER TABLE	1
9.	(a) start(10)	1
10.	(c) data inconsistency	1
11.	(d) 'rb+'	1
12.	(d) having	1
13.	b. Optical fiber	1
14.	(c) 241212	1
15.	c) total	1
16.	(d) fetchone	1
17.	e. A is false but R is True	1
18.	b. Both A and R are true and R is not the correct explanation for A	1
SECTION B		
19.	Correct the following code segment: **def** say(message, times = 1)**:** print(message * times , end **=** ' ') say**('Hello and',times=10)** **say('World')**	2

20.	Any two point of difference Circuit Switching Vs Packet Switching 3 . **OR**	2

Circuit Switching	Packet Switching
Physical path between source and destination	No physical path
All packets use same path	Packets travel independently
Reserve the entire bandwidth in advance	Does not reserve
Bandwidth Wastage	No Bandwidth wastage
No store and forward transmission	Supports store and forward transmission

BASIS FOR COMPARISON	OPTICAL FIBRE	COAXIAL CABLE
Basic	Transmission of the signal is in optical form (light form).	Transmission of the signal is in electrical form.
Composition of the cable	Glass and plastics	Plastic, metal foil and metal wire (usually copper).
Losses in cable	Dispersion, bending, absorption and attenuation.	Resistive, radiated and dielectric loss.
Efficiency	High	Low
Cost	Highly expensive	Less expensive
Bending effect	Can affect the signal transmission.	Bending of wire does not affect the signal transmission.

21.	(a) typeerror (b) 30	1+1
22.	Referential integrity refers to **the relationship between tables**. Because each table in a database must have a primary key, this primary key can appear in other tables because of its relationship to data within those tables. When a primary key from one table appears in another table, it is called a foreign key . • Referential integrity requires that **a foreign key must have a matching primary key or it must be null**. • This constraint is specified between two tables (parent and child); • it maintains the correspondence between rows in these tables. • It means the reference from a row in one table to another table must be valid.	1+1
23.	**CDMA**: Code Division Multiple Access SLIP : **Serial Line Internet Protocol** hypertext Transfer Protocol (HTTP) is an application-layer protocol for **transmitting hypermedia documents, such as HTML**. It was designed for communication between web browsers and web servers	1+1
24.	[1,2,3,4] [1,2,3,4,10] [1,2,3,4,10] OR [20, 16, 10]	2
25.	**Table: PRODUCTS** PID | PNAME | QTY | PRICE | COMPANY | SUPCODE 101 | DIGITAL CAMERA 14X | 120 | 12000 | RENBIX | SO1 102 | DIGITAL PAD 11i | 100 | 22000 | DIGI POP | S02 104 | PEN DRIVE 16 GB | 500 | 1100 | STOREKING | SO1 106 | LED SCREEN 32 | 70 | 28000 | DISPEXPERTS | S02 105 | CAR GPS SYSTEM | 60 | 12000 | MOVEON | S03 **Table: SUPPLIERS** SUPCODE | SNAME | CITY SO1 | GET ALL INC | KOLKATA SO3 | EASY MARKET CORP | DELHI S02 | DIGI BUSY GROUP | CHENNAI (a) Degree= 9 cardinality = 15 (b) Supcode in product table OR Find output: (a)	2

PID	PNAME	QTY	PRICE	COMPANY	SUPCODE	SUPCODE	SNAME	CITY
101	DIGITAL CAMERA 14X	120	12000	RENBIX	S01	S01	GET ALL IN	KOLKATA
102	DIGITAL PAD 11I	100	22000	DIGI POP	S02	S02	DIGI BUSY GROUP	CHENNAI
104	PENDRIVE 16GB	500	1100	STOREKING	S01	S01	GET ALL IN	KOLKATA
106	LED SCREEN 32	70	28000	DISPEXPERTS	S02	S02	DIGI BUSY GROUP	CHENNAI
105	CAR GPS SYSTEM	60	12000	MOVEON	SO3	SO3	EASY MARKET CORP	DELHI

(b)

PID	PNAME	QTY	PRICE	COMPANY	SUPCODE	SNAME	CITY
101	DIGITAL CAMERA 14X	120	12000	RENBIX	S01	GET ALL IN	KOLKATA
102	DIGITAL PAD 11I	100	22000	DIGI POP	S02	DIGI BUSY GROUP	CHENNAI
104	PENDRIVE 16GB	500	1100	STOREKING	S01	GET ALL IN	KOLKATA
106	LED SCREEN 32	70	28000	DISPEXPERTS	S02	DIGI BUSY GROUP	CHENNAI
105	CAR GPS SYSTEM	60	12000	MOVEON	SO3	EASY MARKET CORP	DELHI

SECTION C

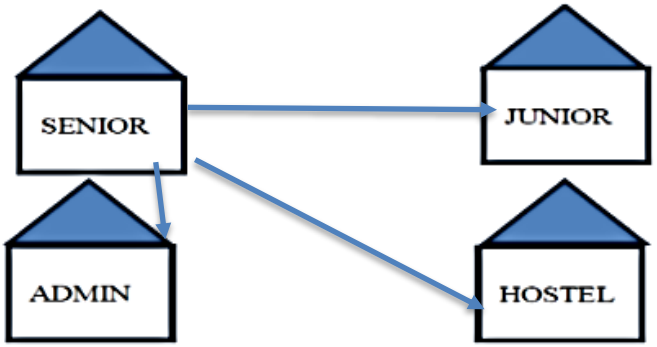
26	(a) import mysqlconnector as myc mycon=myc.connect(host="localhost" user="Admin" passwd="Admin123" databse="System") (b) Write the output of the queries (a) to (d) based on the table, Staff given below: Table: Staff Write the output of the queries (a) to (d) based on the table, Staff given below: **Table: Staff** **Id** | **Name** | **DOJ** | **Dept** | **Gender** | **Exp** 1 | Aman | 12-01-2006 | Finance | M | 15 2 | Dima | 03-05-2016 | Personnel | F | 5 3 | Christina | 15-11-2009 | Sales | F | 12 4 | Shem | 20-12-2006 | Sales | M | 15 5 | Roshan | 13-10-2013 | Finance | M | 8 6 | Danish | 11-09-2013 | Personnel | M | 8 7 | Habeena | 16-08-2011 | Sales | F | 10 (a) 5.66 (b) 12-01-2006 (c) 3 Christina 15-11-2009 Sales F 12 7 habeena 16-08-2011 Sales F 10 (d) Dima 03-05-2016 Danish 11-09-2013	1 0.5 X4

27.	f1=open("TEXT1.TXT")
	f2=open("TEXT2.TXT","w")
	data=f1.read().split()
	for word in data:
	if word[0] not in "AEIOU":
	f2.write(word, " ")
	f1.close()
	f2.close()
	
	OR
	
	f1=open("TEXT1.TXT")
	data=f1.readlines()
	for line in data:
	if line.strip()[-1]=="a":
	print(line)
	f1.close()
		3

28.	Create table Employee(Empid int(5) primary key, Empname char(25) not null, Design char(15) unique , Salary float, DOB date);	3

29.	def merge_tuple(t1,t2):
	t3=( )
	if len(t1)==len(t2):
	for i in range(len(t1)):
	t3[i]=t1[i]+t2[i]
	return t3
	return -1
		3

30.	def push(d, stack):
	for key in d:
	if d[key]<85000:
	stack.append(key)
	
	def pop(stack):
	if stack==[ ]:
	print("underflow")
	else:
	print(stack.pop())
	OR
	def push(l, stack):
	for ele in l:
	if ele<0:
	stack.append(ele)
	
	def pop(stack):
	if stack==[ ]:
	print("underflow")
	else:
	print(stack.pop())
		3

SECTION D		
31.	(a) Star topology , optical fibre or coaxial  	

	(b) S wing as it has maximum no. of computers resulting in maximum internal traffic as per 80:20 rule (c) hub/Switch should be place in all the wings (d) WiFi Router OR WiMax OR RF Router OR Wireless Modem OR RFTransmitter (e) any suitable layout	
32.	(a) 15 20 15 (b) Statement 1 – import mysql.connector Statement 2 – database.cursor() Statement 3- execute(studentRecord)	2+3

33.	(any 2)
	• CSV is human readable and easy to edit manually.
	• CSV is simple to implement and parse.
	• CSV is processed by almost all existing applications.
	• CSV provides a straightforward information schema.
	• CSV is faster to handle.
	• CSV is smaller in size.
	• CSV is considered to be standard format.
	
	Write a program to
	(a)
	
	`import csv`
	
	`field = ["Roll no" , "Name" , "Class"]`
	
	`f = open("data.csv" , 'w')`
	
	`d=csv.writer(f)`
	
	`d.writerow(field)`
	
	`ch='y'`
	
	`while ch=='y' or ch=='Y':`
	
	`rn=int(input("Enter Roll number: "))`
	
	`nm = input("Enter name: ")`
	
	`cls = input("Enter Class: ")`
	
	`rec=[rn,nm,cls]`
	
	`d.writerow(rec)`
	
	`ch=input("Enter more record??(Y/N)")`
	
	`f.close()`
		1+2+2
		OR
		2+3

(b) **f=open("data.csv","r")**

data=csv.reader()

cls=input("class to search record")

for row in data:

If row[2]==Cls:

print(row)

OR

I.

```
import pickle
def CreateEmp():
    f1=open("emp.dat",'wb')
    eid=input("Enter E. Id")
    ename=input("Enter Name")
    designation=input("Enter Designation")
    salary=int(input("Enter Salary"))
    l=[eid,ename,designation,salary]
    pickle.dump(l,f1)
    f1.close()
```

II.

```
import pickle
def display():
    f2=open("emp.dat","rb")
    while True:
        try:
            rec=pickle.load(f2)
            print(rec['eid'],rec['ename'],rec['designation'],rec['salary'])
        except EOFError:
            break
    f2.close()
```

SECTION E		
34	(a) degree = 9 cardinality = 20 (b) degree = 8 cardinality = 28 (c) (i) Select Name, fare, f_date from passenger p, flight f where p.fno=f.fno and start=”DELHI”; (ii) delete from flight where end=”MUMBAI”; OR (c) Create table traveller as select * from passenger;	1+1+2
35.	I. d) import II. c) csvwriter III. d) rec IV. b) customer.csv V. d) rec	5

Class: XII Session: 2022-23

Computer Science (083)

Sample Question Paper (Theory)

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.	Which of the following is an invalid statement? a. abc=1,000,000 c. a b c=100 200 300 b. a, b, c= 100,200,300 d. a=b=c=100	1
2.	Which of the following operators has the highest precedence? (a) << (b) ** (c)% (d)and	1
3.	What will be the output of the following Python code snippet? d1 = {"john":40, "peter":45} d2 = {"john":466, "peter":45} d1 > d2 a) True b) False c) Error d) None	1
4.	What will be the value of the given expression? 3+3.00, 3**3.0 (a) (6.0, 27.0) (b) (6.0, 9.00) (c) (6,27) (d) [6.0,27.0] (e) [6,27]	1
5.	Select the correct output of the code: a = "foobar" a = a.partition("o") (a) ["fo","","bar"] (b) ["f","oo","bar"] (c) ["f","o","bar"] (d) ("f","o","obar")	1

6.	If a text file is opened in w+ mode, then what is the initial position of file pointer/cursor? (a) Beginning of file (b) End of the file (c) Beginning of last line of text file (d) Undetermined	1
7.	Fill in the blank: _____Keyword is used to set foreign key in SQL. (a) foreign key (b)unique (c) references (d)primary	1
8.	Which of the following commands will change the datatype of the table in MYSQL? (a) DELETE TABLE (b) DROP TABLE (c) REMOVE TABLE (d) ALTER TABLE	1
9.	For a user defined function with header def start (x, y, z=10), Which of the following function call statements will generate an error? (a) start(10) (b) start(x = 10,y = 20) (b) start(y = 20, x = 10) (d) All of the above	1
10.	Fill in the blank: _____ refers to a situation of keeping the same data in different formats in two different tables (a) data redundancy (b) data privacy (c) data inconsistency (d) data integrity	1
11.	What is the binary file mode associated with "file must exist, otherwise error will be raised and reading and writing can take place"? (a) 'wb+' (b) 'w+' (c) 'rb' (d) 'rb+'	1
12.	Fill in the blank: Group by clause uses _____ clause to apply conditions on aggregate rows (a) where (b) order by (c) sort (d) having	1
13.	Fill in the blank: What kind of transmission medium is most appropriate to carry data in a computer network that is exposed to electrical interferences? a. Unshielded twisted pair b. Optical fiber c. Coaxial cable d. Microwave	1

14.	If x = 12 and y = '12', then what will be the output of the following code? print(x*2, y*2, sep="") (a) 2424 (b) 24 24 (c) 241212 (d) 24 1212	1
15.	Which of the following is not a built in aggregate function in SQL? a) avg b) max c) total d) count	1
16.	Name the method which is used for displaying only one resultset. (a) fetchmany (b) fetchno (c) fetchall (d) fetchone	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. Both A and R are false. d. A is True but R is False e. A is false but R is True	
17.	Assertion (A): Parameters with default arguments can be followed by parameters with no default argument. Reason (R): Syntactically, it would be impossible for the interpreter to decide which values match which arguments if mixed modes were allowed while providing default arguments.	1
18.	Assertion (A): Local Variables are accessible only within a function or block in which it is declared Reason (R): Global variables are accessible in the whole program.	1
	SECTION B	
19.	Correct the following code segment: DEF say(message, times = 1) print(message * times , end : ' ') say(times=10, 'Hello and') say('World')	2
20.	Write two points of difference between Circuit Switching and Packet Switching. **OR** Write two points of difference between Coaxial and fiber.	2
21.	Find the output. (a) def example(a): a = a+2 a=a*2 return a >>>print(example("hello"))	1

	(b) Sum = 0 for k in range(10 , 1, -2): Sum = Sum+k print(Sum)	1
22.	Explain the referential integrity constraint. What conditions must be met in order to set referential integrity?	2
23.	(a) Write the full forms of the following: (i) CDMA (ii) SLIP (b) What is the use of HTTP?	2
24.	Predict the output of the Python code given below: def modifyList(x): x.append(sum(x)) print(x, end= ‘ ’) L = [1,2,3,4] print(L, end= ‘ ’) modifyList(L) print(L) OR Predict the output of the Python code given below: l1 = [10,15,16,18,20] l1.remove(15) l1.insert(1,30) print (l1[::-2])	2
25.	**Table: PRODUCTS** PID | PNAME | QTY | PRICE | COMPANY | SUPCODE 101 | DIGITAL CAMERA 14X | 120 | 12000 | RENBIX | SO1 102 | DIGITAL PAD 11i | 100 | 22000 | DIGI POP | S02 104 | PEN DRIVE 16 GB | 500 | 1100 | STOREKING | SO1 106 | LED SCREEN 32 | 70 | 28000 | DISPEXPERTS | S02 105 | CAR GPS SYSTEM | 60 | 12000 | MOVEON | S03 **Table: SUPPLIERS** SUPCODE | SNAME | CITY SO1 | GET ALL INC | KOLKATA SO3 | EASY MARKET CORP | DELHI S02 | DIGI BUSY GROUP | CHENNAI (a) Find the Degree and Cardinality of the Cartesian product of the Supplier and Product relations. (b) Identify the foreign key in the given tables, also mention in which table it is appearing as a foreign key? OR Find output: (a) select *from product p, supplier s where p.supcode=s.supcode; (b) select *from product natural join supplier;	2

SECTION C

26 (a) Create the connection of Python with MYSQL, in which (1) — 1+2

User=Admin Password= Admin2123 Database Name=System

(b) Write the output of the queries (a) to (d) based on the table, Staff given below:

Table: Staff

Write the output of the queries (a) to (d) based on the table, Staff given below:

Table: Staff

Id	Name	DOJ	Dept	Gender	Exp
1	Aman	12-01-2006	Finance	M	15
2	Dima	03-05-2016	Personnel	F	5
3	Christina	15-11-2009	Sales	F	12
4	Shem	20-12-2006	Sales	M	15
5	Roshan	13-10-2013	Finance	M	8
6	Danish	11-09-2013	Personnel	M	8
7	Habeena	16-08-2011	Sales	F	10

(a) Select avg(exp) from staff where gender = 'F';

(b) Select min(doj) from staff;

(c) Select *from staff where gender!='M' and dept like '_ _ _ _ _';

(d) Select name, doj from staff where dept not in ('Finance','Sales');

27. Assume that a text file named TEXT1.TXT already contains some text written into it, write a program with a function named vowelwords(), that reads the file TEXT1.TXT and create a new file named TEXT2.TXT , which shall contain only those words from the file TEXT1.TXT which don't start with an uppercase vowel(i.e. with 'A','E','I','O','U') — 3

for example if the file TEXT1.TXT contains

Carry Umbrella and Overcoat When it Rains

then the file TEXT2.TXT shall contain

Carry and when it Rains.

OR

Write a Python program to count all the line having 'a' as last character.

28. Dileep has to create a database named Company in MYSQL. — 3

He now needs to create a table named Employee in the database to store the records of employees in the company. The table Employee has the following structure:

<table>
<tr><td></td><td>Table: Employee
<table><tr><th>Field Name</th><th>Data type</th><th>Remarks</th></tr><tr><td>Empid</td><td>integer of size 5</td><td>Primary Key</td></tr><tr><td>Empname</td><td>character of size 25</td><td>Not null</td></tr><tr><td>Desgn</td><td>character of size 15</td><td>Unique</td></tr><tr><td>Salary</td><td>floating point</td><td></td></tr><tr><td>DOB</td><td>date</td><td></td></tr></table>
Help him to complete the task by suggesting appropriate SQL commands.</td><td></td></tr>
<tr><td>29.</td><td>Write a function merge_tuple(t1,t2), where t1 and t2 are the tuples of elements passed as argument to the function. The function returns another tuple named that stores the sum of consecutive element of t1 and t2, only if they are of same length else return -1

For example:

T1=(1,2,3,4)
T2=(5,6,7,8)
Then function should return
(6,8,10,12)

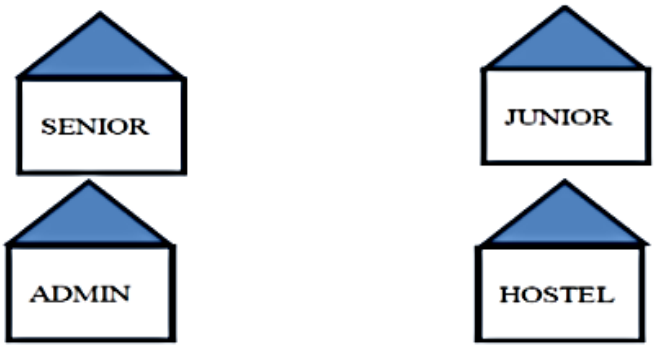
And if
T1=(1,2,3)
T2=(5,6,7,8)
Then function should return
-1</td><td>3</td></tr>
<tr><td>30.</td><td>Rajiv has created a dictionary containing employee names and their salaries as key value pairs of 6 employees.
Write a program, with separate user defined functions to perform the following operations:
● Push the keys (employee name) of the dictionary into a stack, where the corresponding value (salary) is less than 85000.
● Pop and display the content of the stack.
For example:
If the sample content of the dictionary is as follows:

Emp={"Ajay":76000, "Jyothi":150000, "David":89000, "Remya":65000, "Karthika":90000, "Vijay":82000}

The output from the program should be:
Vijay Remya Ajay

OR
Aruna has a list containing temperatures of 10 cities. You need to help her create a program with separate user defined functions to perform the following operations based on this list.</td><td>3</td></tr>
</table>

	● Traverse the content of the list and push the negative temperatures into a stack. ● Pop and display the content of the stack. For Example: If the sample Content of the list is as follows: T=[-9, 3, 31, -6, 12, 19, -2, 15, -5, 38] Sample Output of the code should be: -5 -2 -6 -9	

	SECTION D	
31.	Excel Public School, Coimbatore is setting up the network between its different wings of school campus. There are 4 wings namely SENIOR(S), JUNIOR (J), ADMIN (A) and HOSTEL (H).  Distances between various wings are given below: Wing A to Wing S 100m Wing A to Wing J 200m Wing A to Wing H 400m Wing S to Wing J 300m Wing S to Wing H 100m Wing J to Wing H 450m Number of Computers installed at various wings are as follows: Wings Number of Computers Wing A 20 Wing S 150 Wing J 50 Wing H 25 (a) Suggest the best-wired medium and mention the topology or layout to connect various wings of Excel Public School, Coimbatore. (b) Name the most suitable wing to house the server. Justify your answer. (c) Suggest placement of HUB/SWITCH in the network of the School.	5

	(d) Suggest a device that can provide wireless Internet access to all smartphone/laptop users in the campus of Excel Public School, Coimbatore. (e) Draw suitable layout to connect all four wings of Excel Public School	

32.	(a) Write the output of the code given below:
	
	x = 10
	def localvar():
	  global x
	  x+=5
	  print(x, end=' ')
	  print(x+5, end=' ')
	localvar()
	print(x, end=' ')
	
	(b) following code establishes connectivity between Python and MYSQL:
	
	_____ #statement 1
	dataBase = mysql.connector.connect(
	host ="localhost",
	user ="user",
	passwd ="password",
	database = "gfg"
	)
	
	# preparing a cursor object
	cursorObject = _____ #statement 2
	
	# creating table
	studentRecord = """CREATE TABLE STUDENT (
	NAME VARCHAR(20) NOT NULL,
	BRANCH VARCHAR(50),
	ROLL INT NOT NULL,
	SECTION VARCHAR(5),
	AGE INT
	)"""
	
	# table created
	cursorObject._____ #statement 3
	
	# disconnecting from server
	dataBase.close(
	
	Write the following missing statements to complete the code: Statement 1 – to import requisite module
	Statement 2 – to form the cursor object
	Statement 3- to execute the command that creates table
		2+3

33. What is the advantage of using a csv file for permanent storage? 5

Write a program to

(a) add/insert records in file "data.csv". Structure of a record is roll number, name and class.

(b) search and display record for a given class

OR

A binary file "emp.dat" has structure [EID, Ename, designation, salary].

I.Write a user defined function CreateEmp() to input data for a record and add to emp.dat.

II.Write a function display() in Python to display the detail of all employees.

SECTION E

34 Write SQL queries for (a) to (d) based on the tables PASSENGER and FLIGHT given below: 1+1+2

Table : **PASSENGER**

PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103

Table: **FLIGHT**

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

	(a) what will be the degree and cardinality of the resulting relation after Cartesian product of above relations? (b) what will be the degree and cardinality of the resulting flight after addition of two rows and deletion of one column? (c) (i) Write a query to display the **NAME,** corresponding **FARE** and **F_DATE** of all PASSENGERS who have a flight to **START** from DELHI. (ii) Write a query to delete the records of flights which end at Mumbai. OR (c) create a new table traveller having same fields and tuples as passenger.	
35.	Sudev, a student of class 12th, is learning CSV File Module in Python. During examination, he has been assigned an incomplete python code to create a CSV file 'customer.csv'. Help him in completing the code which creates the desired CSV file.	5

Cus_No	Name	Ph_No
11	Rohit	8567843243
12	Sonal	9645342345

```
_________csv  #Statement  1
def Create_CSV():
    fw=open("customer.csv","w")
     __________=csv.writer(fw)                    #Statement2
    csvwriter.writerow(["Cus_No","Name","Ph_No"])
    n=int(input("Enter total number of Customer"))
   for i in range(n):
          cusno=int(input("Enter    Customer    no."))
          Name=input("EnterName")
          Ph_No=int(input("EnterPhone          No."))
          Rec=[cusno,Name,Ph_No]
          csvwriter.writerow(_______) #Statement 3
   fw.close()
```

```
def Display_CSV():
    fr=open(_____,"r")  #Statement  4
    cusreader=csv.reader(fr)
    i=0
    for_____in cusreader: #Statement 5if
        i%2==0:
            print(rec[0],'\t',rec[1],'\t',rec[2])
        else:
            pass
        i+=1
    fr.close()

Create_CSV()
Display_CSV()
```

I. Identify suitable code for the blank space in line marked as Statement-
a) include
b) add
c) Import
d) import

II. Identify the missing code for the blank space in line marked as Statement-2.
a) Customer
b) reader
c) csvwriter
d) writer

III. Identify the argument name for the blank space in line marked as Statement-3?
a) Row
b) Rec
c) row
d) rec

IV. Identify the missing file name for the blank space in line marked as Statement-4?
a) customer
b) customer.csv
c) customer.txt
d) customer.dat

V. Identify the object name for the blank space in line marked as Statement-5?
a) i
b) Rec
c) row
d) rec

KENDRIYA VIDYALAYA SANGATHAN - MUMBAI REGION

Sample Question Paper

Class: XII

Subject: Computer Science Max. Marks: 70

Blue Print

Name of Chapter	VSA (1M)	VSA (2M)	SA (3M)	LA (4M)	LA (5M)	TOTAL
PYTHON REVISION TOUR – I	4(4)	–	–	–	–	4(4)
PYTHON REVISION TOUR – II	3(3)	2(1)	–	–	–	5(4)
WORKING WITH FUNCTIONS	1(1)	4(2)	3(1)	–	2(1a)	10(4+½)
TEXT FILE HANDLING	2(2)	–	3(1)	–	–	5(3)
BINARY FILE HANDLING	–	–	–	4(1)	–	4(1)
CSV FILE HANDLING	1(1)	–	–	–	5(1)	6(2)
DATA STRUCTURE	–	–	3(1)	–	–	3(1)
COMPUTER NETWORKS – HARDWARE	–	2(1)	–	–	5(1)	7(2)
COMPUTER NETWORKS – SOFTWARE	1(1)	2(1)	–	–	–	3(2)
DATABASE AND RDBMS	1(1)	2(1)	–	2(1a)	–	5(2+½)
SQL QUERIES	3(3)	–	–	2(1b)	–	5(3+½)
FUNCTIONS AND JOINS	1(1)	2(1)	6(2)	–	–	9(4)
PYTHON – MYSQL CONNECTIVITY	1(1)	–	–	–	3(1b)	4(1+½)
GRAND TOTAL	**18(18)**	**14(7)**	**15(5)**	**8(2)**	**15(3)**	**70(35)**

KENDRIYA VIDYALAYA SANGATHAN - MUMBAI REGION

Sample Question Paper

Class: XII | Time: 3 Hours

Subject: Computer Science | Max. Marks: 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 1 mark each.
4. Section B has 7 very short answer type questions carrying 2 marks each.
5. Section C has 5 short answer type questions carrying 3 marks each.
6. Section D has 3 long answer type questions carrying 5 marks each.
7. Section E has 2 long answer type questions carrying 4 marks each.
8. Internal choices are given in few questions.
9. All programming questions are to be answered using PYTHON language only.

SECTION - A

1 Identify the name(s) from the following that cannot be used as identifiers in Python: 1

asaword22, 22ndyear, date26-10-2022, _my_file_2

2 Name the datatype for the following: 1

a. 'True'

b. 2.46E-2

3 Consider the following dictionary: 1

machine = {'id':1001, 'name':'UPS', 'capacity':5000, 'rate':15000.00}

Write a statement to change the capacity to 4500.

4 What will be the result of following expression: 1

10>12 and "a"+1<55

a. True

b. False

c. Error

d. None

5 What will be the output of the following: 1

```
str = "Cricket World Cup in Australia"
str2 = str[:7] + " " + str[18:] + "."
print(str2)
```

6 Which of the file opening mode will not create a new file if file does not exist: 1

a. r

b. w

c. a

d. There is not such file opening mode

7 Fill in the blank: 1

Command used to remove a column/attribute from the table/relation is _____.

a. Update

b. Drop

c. Alter

d. Remove

8 Shridharan created a database namely work. Now he wants to create a table in it. For this he needs to open the database he created. Write command to open the database that is created by Shridharan. 1

9 What will be the output of the following code: 1

```
address = '42/B/III, Van-Vihar Colony, Nagpur'
str = address.replace('/','@')
print(address)
```

10 Fill in the blank: 1

The attribute which is a candidate key but not a primary key is known as _____.

11 Which of the following gives the result as string when applied to text file in Python: 1

a. read( )
b. readline( )
c. readlines( )
d. get( )

12 When following command is run the result yielded 20 rows: 1

SELECT * FROM Clock;

But when following command is run; it yielded 17 rows only:

SELECT name FROM Clock;

Can you state the reason for the difference?

13 Which of the following is used for remote login: 1

a. VoIP
b. HTTP
c. IMAP
d. TELNET

14 What will be the output of the following statement: 1

```
print(30/5+(16+6))
```

15 Rajiv ran following two commands: 1

SELECT count(commission) FROM Employee;

SELECT count(*) FROM Employee;

Output of first command is 8 where output of second command is 14. What is the reason for the difference?

16 After executing any DML command from Python in Python-Mysql connectivity, following is necessary to execute in order to make the changes permanent in MySQL: 1

a. save( )
b. store( )
c. commit( )
d. update( )

Questions 17 and 18 are ASSERTION (A) and REASONING ® based questions. Mark the correct choice as

a. Both A and R are true and R is the correct explanation of A.
b. Both A and R are true and R is not the correct explanation of A.
c. A is true but R is false.
d. A is false but R is true.

17 Assertion (A): Inside a function if we make changes in a string it will reflect back to the original string. 1

Reason (R): String is an immutable datatype and it is called by value.

18 Assertion (A): In CSV file there is a blank line after every record. 1

Reason (R): Default value of newline is '\n' in open() statement used with csv file.

SECTION - B

19 Following code is having some errors. Rewrite the code after correcting and underlining each correction: 2

```
x == 20
def printme( ):
    y = x + 10
    sum = 0
    for i in range(x,y)
        if i%3=0:
            sum=sum+i+1
        Elseif:
            sum += 2
    return(sum)
```

20 Write one advantage and one disadvantage of using Fiber Optic Cable. 2

OR

Write two differences between Circuit Switching and Packet Switching.

21 What will be the output of the following code: 2

```
sub = "083 Comp. Sc. & 065 Info. Prac."
n = len(sub)
s=''
for i in range(n):
    if sub[i].isupper( ):
        s = s + sub[i].lower( )
    elif sub[i].islower( ):
        s = s + sub[i]
    elif sub[i].isdigit( ):
        s = s + 'x'
    elif sub[i].isspace( ):
        pass
    else:
        s = s + '!'
print(s)
```

22 Define Foreign Key. Identify foreign key from the following tables: 2

Table: Bank_Account

Acctno	Name	BCode	Type
1001	Amrita	A2	Savings
1002	Parthodas	A3	Current
1005	Miraben	A2	Current

Table: Branch

Code	City
A1	Delhi
A2	Mumbai
A3	Nagpur

23 a. What is the full form of SMTP and HTTP? 1

b. What is the use of POP3? 1

24 What will be the output of the following code: 2

```
def Call4Change( ):
    for i in range(len(lst)):
        if lst[i]%2==0:
            lst[i]+=1
        elif lst[i]%3==0:
            lst[i]+=2
        elif lst[i]%5==0:
            lst[i]+=4
        else:
            lst[i]=0
lst = [1, 2, 9, 5, 12, 6, 7, 3, 10, 8, 11, 4]
Call4Change( )
print(lst)
```

OR

What will be the output of the following code:

```
def Value2New(M, N=10):
    M = M + N
    N = N*2
    if N%10==0:
        N=N/5
    return(M,N)
P,Q = Value2New(100,20)
print(P,'#',Q)
P,Q = Value2New(50)
print(P,'#',Q)
```

25 Name the SQL function that will be used in following situations:

a. To find the average salary paid to employees. ½

b. To find the month in which an employee is hired. ½

c. To find position of a substring in customer name. ½

d. To find 40% of totalmarks rounded to 2 decimal places. ½

OR

Consider the following tables and write queries for a and b:

Table: Bank_Account

Acctno	Name	BCode	Type
1001	Amrita	A2	Savings
1002	Parthodas	A3	Current
1005	Miraben	A2	Current

Table: Branch

Code	City
A1	Delhi
A2	Mumbai
A3	Nagpur

a. To list Acctno, Name and City of those accounts whose Account Type is Current. 1

b. To display Acctno and Name of those accounts whose Code is A2. 1

SECTION - C

26 Consider the following tables and answer the questions a and b:

Table: Garment

GCode	GName	Rate	Qty	CCode
G101	Saree	1250	100	C03
G102	Lehanga	2000	100	C02
G103	Plazzo	750	105	C02
G104	Suit	2000	250	C01
G105	Patiala	1850	105	C01

Table: Cloth

CCode	CName
C01	Polyester
C02	Cotton
C03	Silk
C04	Cotton-Polyester

a. What will be output of the following command:
SELECT * FROM GARMENT NATURAL JOIN CLOTH; 1

b. What will be the output of following commands:

i. SELECT DISTINCT QTY FROM GARMENT; ½

ii. SELECT SUM(QTY) FROM GARMENT GROUP BY CCODE HAVING COUNT(*)>1; ½

iii. SELECT GNAME, CNAME, RATE FROM GARMENT G,CLOTH C WHERE G.CCODE = C.CCODE AND QTY>100; ½

iv. SELECT AVG(RATE) FROM GARMENT WHERE RATE BETWEEN 1000 AND 2000; ½

27 Write a function countbb( ) in Python, which reads the contents from a text file 'article.txt' and displays number of occurrences of words 'bat' and 'ball' (in all possible cases) to the screen. 3

Example:

If the content of file article.txt is as follows:

Bat and ball games are field games played by two opposing teams. Action starts when the defending team throws a ball at a dedicated player of the attacking team, who tries to hit it with a bat and run between various safe areas in the field to score runs (points). The defending team can use the ball in various ways against the attacking team's players to force them off the field when they are not in safe zones, and thus prevent them from further scoring. The best

known modern bat and ball games are cricket and baseball, with common roots in the 18th-century games played in England.

The countbb( ) function should display as:

Number of times bat occurs is 3

Number of times ball occurs is 5

OR

Write a function SOnly( ) in Python, which reads the contents from a text file 'news.txt' and creates another file 'modnews.txt'. New file contains only those lines that starts with an alphabet.

Example:

If the content of file news.txt is as follows:

This is Peter from California.

24th street is where I live.

__name__ is used in Python functions.

User defined functions is what I am presently reading.

Upon execution of function Sonly( ) file modnews.txt should contain:

This is Peter from California.

User defined functions is what I am presently reading.

28 Consider following tables and write queries for situation a and b. Find the output of c and d:

Table: CLUB

CoachID	CoachName	Age	Sports	Dateofapp	Pay	Sex
1	KUKREJA	35	KARATE	1996-03-27	1000	M
2	RAVINA	34	KARATE	1998-01-20	1200	F
3	KARAN	34	SQUASH	1998-02-19	2000	M
4	TARUN	33	BASKETBALL	1998-01-01	1500	M
5	ZUBIN	36	SWIMMING	1998-01-12	750	M
6	KETAKI	36	SWIMMING	1998-02-24	800	F
7	ANKITA	39	SQUASH	1998-02-20	2200	F
8	ZAREEN	37	KARATE	1998-02-22	1100	F
9	KUSH	41	SWIMMING	1998-01-13	900	M
10	SHAILYA	37	BASKETBALL	1998-02-19	1700	M

Table: COACHES

Sportsperson	Sex	Coach_No
AJAY	M	1
SEEMA	F	2
VINOD	M	1
TANEJA	F	3

a. To list names of all coaches with their date of appointment in descending order. 1

b. To display total pay given to coaches in each sport. 1

c. SELECT Sportsperson, Coachname FROM Club, Coaches WHERE Coachid = Coach_no; ½

d. SELECT Sex, MAX(Dateofapp), MIN(Dateofapp) FROM Club GROUP BY Sex; ½

29 Write a function SumDiv(L,x), where L is a list of integers and x is an integer; passed as arguments to the function. The function returns the sum of elements of L which are divisible by x or x+1. 3

For example,

If L Contains [10, 27, 12, 20, 22] and x is 5

Then function returns 42 (10+12+20)

30 A nested list contains the records of Mobiles in the following format: 3

[[modelno, name, price], [modelno, name, price], [modelno, name, price],....]

Write the following user defined functions to perform given operations on the stack named Mobile:

a. Push operation – To push details (modelno, name, price) of those mobiles which has price lower than 10000. Make a note that there cannot be more than 20 elements in stack Mobile.

b. Pop operation – To pop elements from stack one by one and display them. Also, display "Underflow" when stack becomes empty.

For example,

If the list contains

[['V20', 'Vivo 20 SE', 18000], ['S11', 'Lava S11', 8900], ['i88', 'IPro 88 SE', 6500], ['ip13', 'iPhone 13', 125000]]

The stack should contain:

['i88', 'IPro 88 SE', 6500]

['S11', 'Lava S11', 8900]

The Output should be:

['i88', 'IPro 88 SE', 6500]

['S11', 'Lava S11', 8900]

Underflow

OR

A Dictionary Medal contains the details of schools and medals won by them in following format {school_name:medals_won}.

Write a function Push(Medal) in Python that pushes those school names in stack named SCHOOL which has won more than 3 medals. Maximum capacity of stack SCHOOL is 15. Function also shows number of items pushed in stack. If number of items exceeds 15 then it shows OVERFLOW.

For example:

If dictionary Medal contains

{'KV1':5, 'KV2':2, 'KV3':4, 'KV4':1, 'KV5':7}

Then stack should contain

KV5

KV3

KV1

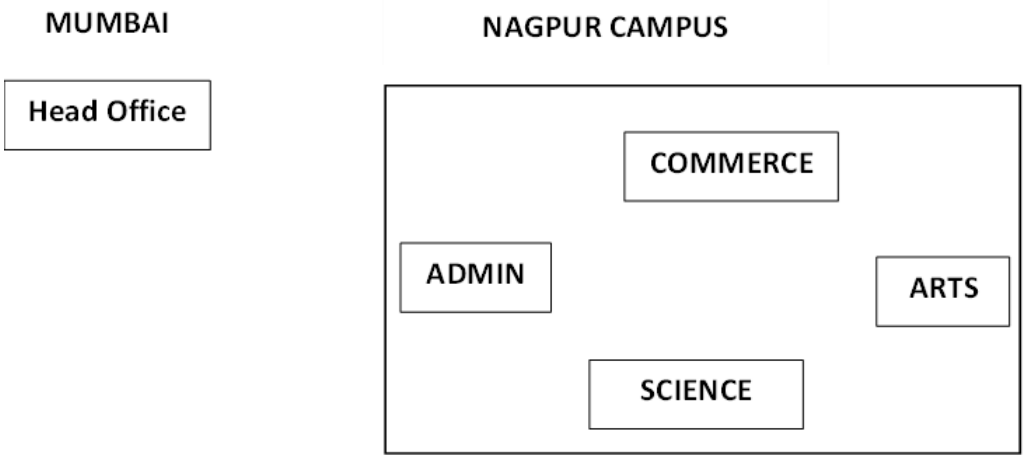
The output should be:

Number of item pushed in stack Medal are 3

SECTION D

31 Superior Education Society is an educational Organization. It is planning to setup its Campus at Nagpur with its head office at Mumbai. The Nagpur Campus has 4 main buildings – ADMIN, COMMERCE, ARTS and SCIENCE.

You as a network expert have to suggest the best network related solutions for their problems raised in a to e, keeping in mind the distances between the buildings and other given parameters:



Shortest distances between various buildings:

ADMIN to COMMERCE – 55 m
ADMIN to ARTS – 90 m
ADMIN to SCIENCE – 50 m
COMERCE to ARTS – 55 m
COMMERCE to SCIENCE – 50 m
ARTS to SCIENCE – 45 m

MUMBAI Head Office to NAGPUR Campus – 850 KM

Number of Computers installed at various buildings are as follows:

ADMIN – 110
COMMERCE – 75
ARTS – 40
SCIENCE – 12
MUMBAI Head Office – 20

a. Suggest the most appropriate location of the server inside the Nagpur Campus to get the best connectivity for maximum number of computers. Justify your answer. 1

b. Suggest and draw the cable layout to efficiently connect various buildings within the Nagpur campus for connecting the computers. 1

c. Which of the following will you suggest to establish the online face-to-face communication between the people in the ADMIN office of Nagpur Campus and Mumbai Head office? 1

   i. Cable TV
   ii. E-mail
   iii. Video Conferencing
   iv. Text Chat

d. Suggest the placement of following devices with appropriate reasons: 1

   i. Switch/Hub

ii. Repeater

e. Suggest the device/software to be installed in Nagpur Campus to take care of data security and unauthorized access. 1

32 a. Write the output of the Code given below: 2

```
x = 15
def add(p=2, q=5):
    global x
    x = p+q+p*q
    print(x,end='@')
m = 20
n = 5
add(m,n)
add(q=10, p = -3)
```

b. The code given below inserts the following record in table Garment: 3

GCode – integer
GName – string
Rate – decimal
Qty – integer
CCode = integer

Write missing Statements (Statement 1, Statement 2 and Statement 3) to complete the code:

```
import mysql.connector as mycon
cn = mycon.connect(host='localhost', user='test', password='None', database='cloth')
cur = _____________________ #Statement 1
while True:
    GCode = int(input("Enter Garment Code = "))
    GName = input("Enter Garment Name = ")
    Rate = float(input("Enter Rate = "))
    Qty = int(input("Enter Quantity = "))
    CCode = int(input("Enter Cloth Code = "))
    q = "insert into Garment Values ({}, '{}', {}, {}, {}".format(GCode, GName, Rate, Qty, CCode)
    cur._____________(q) #Staatement 2
    _____________________ #Statement 3
    ans = input("Do you have more records (Y/N)=")
    if ans.upper()=='N':
        break
print("Records Successfully Saved")
cn.close()
```

OR

a. Write the output of the Code given below: 2

```
def Timing(T, m=0):
    print("Present Time is",end=':')
    if m>10 and m<=20:
        print("Quarter Past",T)
```

```
    elif m<=40:
        print("Half Past",T)
    elif m<=59:
        print("Quarter to",T+1)
    else:
        print("Incorrect Minutes")
Timing(5,18)
Timing(11)
Timing(12,60)
```

b. The code given below reads those records from table Garment which has Qty less than 50. Records in table Garments are stored with following attributes: 3

GCode – integer
GName – string
Rate – decimal
Qty – integer
CCode = integer

Write missing Statements (Statement 1, Statement 2 and Statement 3) to complete the code:

```
import mysql.connector as mycon
cn = mycon.connect(host='localhost', user='test', password='None', database='cloth')
cur = _____                    #Statement 1
cur._____                      #Staatement 2 (Create & Execute Query)
G = _____                      #Statement 3Read complete result of query
print("Required records are:")
for i in G:
    print(i)
cn.close()
```

33 What is the difference between CSV file and Text File? Write a program in Python that defines and calls the following functions: 5

Insert() – To accept details of clock from the user and stores it in a csv file 'watch.csv'. Each record of clock contains following fields – ClockID, ClockName, YearofManf, Price. Function takes details of all clocks and stores them in file in one go.

Delete() – To accept a ClockID and removes the record with given ClockID from the file 'watch.csv'. If ClockID not found then it should show a relevant message. Before removing the record it should print the record getting removed.

OR

Give one advantage of using CSV file over Binary file. Write a program in Python that defines and calls the following functions: 5

saving() – To accepts details of equipments from the user in following format (ID, Name, Make, Price) and save it in a csv file 'parts.csv'. Function saves one record at a time.

search( ) – To accept two prices and displays details of those equipments which has price between these two values.

SECTION E

34 Mayanti just started to work for a sports academy having several branches across India. The sports academy appoints various trainers to train various sports. She has been given the task to maintain the data of the trainers. She has made a table called TRAINERS in the database which has following records:

Table: TRAINER

TrainerNo	Name	City	HireDate	Salary
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Based on the data given above answer the following questions:

a. Can City be used as Primary key for table TRAINER? Justify your answer. 1

b. What is the degree and cardinality of the table TRAINER? If we add two rows and remove three rows from table TRAINER. Also if we add another attribute in the table, what will be the degree and cardinality of the table TRAINER will become? 1

c. Write statements for:

i. Insert a new record in table TRAINER with values, TrainerNo = 107, Name = Swastik, HireDate = 1999-01-22, Salary = 90000. 1

ii. Increase the salary of those Trainer having city as DELHI by 5000. 1

OR

c. Write Statements for:

i. Removes those records from table TRAINER who were hired after year 2000. 1

ii. Add a new column Grade with datatype as Varchar and maximum size as 2. 1

35 Tarun Nair is working under XYZ Incorporation which deals with exporting of goods to foreign countries. To keep track of inventory he is creating a Python program to store the information of item number and quantity in a binary file inventory.dat. For that he has written the following code. Go through the code given and solve problems given below:

```
def write(ino,qty):
    F = open(_____)              #Mark 2
    L= _____                     #Mark 3
    L.append([ino,qty])
    F.close( )
    F=open('inventory.dat','wb')
    pickle.dump(L,F)
    F.close( )
```

```
def Receive(ino,qty):
    F=open("inventory.dat","rb")
    L=pickle.load(F)
    F.close()
    for i in range(len(L)):
        if L[i][0] == ino:
            L[i][1] += qty
    F=open("inventory.dat",'wb')
    pickle.dump(L,F)
    _____                    #Mark 4

def Sent(ino,qty):
    with open("inventory.dat","rb") as F:
        L=pickle.load(F)
        for i in range(len(L)):
            if L[i][0] == ino:
                L[i][1] -= qty
    with open("inventory.dat",'wb') as F:
        pickle.dump(L,F)
```

a. Write statement to open the file at Mark 2 to read records from the file. 1

b. Write statement at Mark 3 to read the content of binary file in list L. 1

c. Write statement at Mark 4 to close the file. 1

d. Why there is no need to close the file in function Sent()? 1

****

KENDRIYA VIDYALAYA SANGATHAN - MUMBAI REGION

Marking Scheme

Class: XII Time: 3 Hours

Subject: Computer Science Max. Marks: 70

1 Identify the name(s) from the following that cannot be used as identifiers in Python: asaword22, 22ndyear, date26-10-2022, _my_file_2

Answer:

22ndyear, date26-10-2022

½ mark for each correct answer

2 Name the datatype for the following:

a. 'True'

b. 2.46E-2

Answer:

a. String or str

b. Float or Number

½ mark for each correct answer

3 Consider the following dictionary:

machine = {'id':1001, 'name':'UPS', 'capacity':5000, 'rate':15000.00}

Write a statement to change the capacity to 4500.

Answer:

machine['capacity'] = 4500

1 mark for the correct answer

4 What will be the result of following expression:

10>12 and "a"+1<55

a. True

b. False

c. Error

d. None

Answer:

b. False

1 mark for the correct answer

5 What will be the output of the following:

```
str = "Cricket World Cup in Australia"
str2 = str[:7] + " " + str[18:] + "."
print(str2)
```

Answer:

Cricket in Australia.

1 mark for the correct answer

6 Which of the file opening mode will not create a new file if file does not exist:

a. r

b. w

c. a

d. There is not such file opening mode

Answer:

a. R

1 mark for the correct answer

7 Fill in the blank:

Command used to remove a column/attribute from the table/relation is _____.

a. Update
b. Drop
c. Alter
d. Remove

Answer:

c. Alter

1 mark for the correct answer

8 Shridharan created a database namely work. Now he wants to create a table in it. For this he needs to open the database he created. Write command to open the database that is created by Shridharan.

Answer:

Use work;

1 mark for the correct answer

½ mark if only Use is written.

9 What will be the output of the following code:

```
address = '42/B/III, Van-Vihar Colony, Nagpur'
str = address.replace('/','@')
print(address)
```

Answer:

42/B/III, Van-Vihar Colony, Nagpur

1 mark for the correct answer

10 Fill in the blank:

The attribute which is a candidate key but not a primary key is known as _____.

Answer:

Alternate Key

1 mark for the correct answer

11 Which of the following gives the result as string when applied to text file in Python:

a. read( )
b. readline( )
c. readlines( )
d. get( )

Answer:

a. read() and b. readline()

½ mark each for each correct answer

12 When following command is run the result yielded 20 rows:

```
SELECT * FROM Clock;
```

But when following command is run; it yielded 17 rows only:

```
SELECT name FROM Clock;
```

Can you state the reason for the difference?

Answer:

First command displays all columns from the table Clock but second command shows only name column. Difference between output rows is because three rows have NULL values for name column.

1 mark for the correct answer

13 Which of the following is used for remote login:

a. VoIP
b. HTTP
c. IMAP
d. TELNET

Answer:

d. TELNET

1 mark for the correct answer

14 What will be the output of the following statement:

```
print(30/5+(16+6))
```

Answer:

28.0

1 mark for the correct answer

15 Rajiv ran following two commands:

```
SELECT count(commission) FROM Employee;
SELECT count(*) FROM Employee;
```

Output of first command is 8 where output of second command is 14. What is the reason for the difference?

Answer:

First command counts commission column whereas second command counts rows present in the table. Reason for difference is that there are 6 rows in tables having NULL for column commission.

1 mark for the correct answer

16 After executing any DML command from Python in Python-Mysql connectivity, following is necessary to execute in order to make the changes permanent in MySQL:

a. save()
b. store()
c. commit()
d. update()

Answer:

c. commit()

1 mark for the correct answer

17 Assertion (A): Inside a function if we make changes in a string it will reflect back to the original string.

Reason (R): String is an immutable datatype and it is called by value.

Answer:

d. A is false but R is true

1 mark for the correct answer

18 Assertion (A): In CSV file there is a blank line after every record.

Reason (R): Default value of newline is '\n' in open() statement used with csv file.

Answer:

a. Both A and R are true and R is the correct explanation of A.

1 mark for the correct answer

19 Following code is having some errors. Rewrite the code after correcting and underlining each correction:

```
x == 20
def printme( ):
    y = x + 10
    sum = 0
    for i in range(x,y)
        if i%3=0:
            sum=sum+i+1
        Elseif:
            sum += 2
    return(sum)
```

Answer:

```
x = 20
def printme():
   y = x + 10
   sum = 0
   for i in range(x,y):
      if i%3==0:
         sum=sum+i+1
      elif:
         sum += 2
   return(sum)
```

½ mark each for each correct correction

20 Write one advantage and one disadvantage of using Fiber Optic Cable.

OR

Write two differences between Circuit Switching and Packet Switching.

Answer:

Advantages (any one):

1. **Fiber Optic Cable has very fast speed.**
2. **Fiber Optic Cables are immune to noise or attenuation.**

Disadvantages (any one):

1. **Fiber Optic Cables are very costly.**
2. **Fiber Optic Cables are difficult to maintain**

½ mark for correct advantage and ½ mark for correct disadvantage

OR

1. **In circuit switching a dedicated path is established between sender and receiver, whereas, in packet switching no dedicated path is established between sender and receiver.**
2. **In circuit switching there is no delay in data transmission, whereas, packet switching experiences delay in data transmission.**
3. **In circuit switching there is no issue of congestion or garbled messages, whereas, in packet switching congestion and garbled messages is a common issue.**

4. **Circuit switching required long setup time, whereas, packet switching requires no setup time.**

1 mark each for each correct difference (maximum 2 marks)

21 What will be the output of the following code:

```
sub = "083 Comp. Sc. & 065 Info. Prac."
n = len(sub)
s=''
for i in range(n):
    if sub[i].isupper():
        s = s + sub[i].lower()
    elif sub[i].islower():
        s = s + sub[i]
    elif sub[i].isdigit():
        s = s + 'x'
    elif sub[i].isspace():
        pass
    else:
        s = s + '!'
print(s)
```

Answer:

xxxcomp!sc!!xxxinfo!prac!

½ mark for correct display of x

½ mark for correct display of !

½ mark for correct conversion of uppercase to lowercase

½ mark for not converting lowercase too uppercase

22 Define Foreign Key. Identify foreign key from the following tables:

Table: Bank_Account

Acctno	Name	BCode	Type
1001	Amrita	A2	Savings
1002	Parthodas	A3	Current
1005	Miraben	A2	Current

Table: Branch

Code	City
A1	Delhi
A2	Mumbai
A3	Nagpur

Answer:

A non-key attribute in a relation which is a primary key in another table can be used to establish relationship between these tables. Such an attribute is known as foreign key in table where it is not a primary key.

BCode attribute in table Bank_Account is a foreign key for Code attribute of table Branch.

1 mark for correct definition of Foreign Key

1 mark for correct identification of Foreign Key in example

23 a. What is the full form of SMTP and HTTP?

b. What is the use of POP3?

Answer:

a. **SMTP → Simple Mail Transfer Protocol**
   HTTP → HyperText Transfer Protocol

½ mark each for each correct expansion.

b. **POP3 or Post Office Protocol version 3 is used to access mailbox and download e-mail messages to the local computer.**

1 mark for correct answer

24 What will be the output of the following code:

```
def Call4Change( ):
    for i in range(len(lst)):
        if lst[i]%2==0:
            lst[i]+=1
        elif lst[i]%3==0:
            lst[i]+=2
        elif lst[i]%5==0:
            lst[i]+=4
        else:
            lst[i]=0
lst = [1, 2, 9, 5, 12, 6, 7, 3, 10, 8, 11, 4]
Call4Change( )
print(lst)
```

OR

What will be the output of the following code:

```
def Value2New(M, N=10):
    M = M + N
    N = N*2
    if N%10==0:
        N=N/5
    return(M,N)
P,Q = Value2New(100,20)
print(P,'#',Q)
P,Q = Value2New(50)
print(P,'#',Q)
```

Answer:

[0, 3, 11, 9, 13, 7, 0, 5, 11, 9, 0, 5]

½ mark for correct conversion to 0

½ mark for correct addition of 1

½ mark for correct addition of 2

½ mark for correct addition of 4

OR

120 # 8.0

60 # 4.0

1 mark each for each correct output

25 Name the SQL function that will be used in following situations:

a. To find the average salary paid to employees.

b. To find the month in which an employee is hired.

c. To find position of a substring in customer name.

d. To find 40% of totalmarks rounded to 2 decimal places.

OR

Consider the following tables and write queries for a and b:

Table: Bank_Account

Acctno	Name	BCode	Type
1001	Amrita	A2	Savings
1002	Parthodas	A3	Current
1005	Miraben	A2	Current

Table: Branch

Code	City
A1	Delhi
A2	Mumbai
A3	Nagpur

a. To list Acctno, Name and City of those accounts whose Account Type is Current.

b. To display Acctno and Name of those accounts whose Code is A2.

Answer:

a. AVG()

b. MONTH()

c. INSTR()

d. ROUND()

½ mark each for each correct answer

OR

a. SELECT ACCTNO, NAME, CITY FROM BANK_ACCOUNT, BRANCH WHERE BCODE = CODE AND TYPE = 'Current';

b. SELECT ACCTNO, NAME FROM BANK_ACCOUNT WHERE BCODE = 'A2';

1 mark each for each correct answer

26 Consider the following tables and answer the questions a and b:

Table: Garment

GCode	GName	Rate	Qty	CCode
G101	Saree	1250	100	C03
G102	Lehanga	2000	100	C02
G103	Plazzo	750	105	C02
G104	Suit	2000	250	C01
G105	Patiala	1850	105	C01

Table: Cloth

CCode	CName
C01	Polyester
C02	Cotton
C03	Silk
C04	Cotton-Polyester

a. What will be output of the following command:

SELECT * FROM GARMENT NATURAL JOIN CLOTH;

b. What will be the output of following commands:

i. SELECT DISTINCT QTY FROM GARMENT;

ii. SELECT SUM(QTY) FROM GARMENT GROUP BY CCODE HAVING COUNT(*)>1;

iii. SELECT GNAME, CNAME, RATE FROM GARMENT G,CLOTH C WHERE G.CCODE = C.CCODE AND QTY>100;

iv. SELECT AVG(RATE) FROM GARMENT WHERE RATE BETWEEN 1000 AND 2000;

Answer:

a.

```
+-------+-------+---------+------+------+-----------+
| ccode | gcode | gname   | rate | qty  | cname     |
+-------+-------+---------+------+------+-----------+
| C03   | G101  | Saree   | 1250 |  100 | Silk      |
| C02   | G102  | Lehanga | 2000 |  100 | Cotton    |
| C02   | G103  | Plazzo  |  750 |  105 | Cotton    |
| C01   | G104  | Suit    | 2000 |  250 | Polyester |
| C01   | G105  | Patiala | 1850 |  105 | Polyester |
+-------+-------+---------+------+------+-----------+
```

1 mark for complete correct output

½ mark for partially correct output

b.

i.

```
+------+
| qty  |
+------+
|  100 |
|  105 |
|  250 |
+------+
```

ii.

```
+-----------+
| SUM(QTY) |
+-----------+
|      355 |
|      205 |
+-----------+
```

iii.

```
+---------+-----------+------+
| GNAME   | CNAME     | RATE |
+---------+-----------+------+
| Plazzo  | Cotton    |  750 |
| Suit    | Polyester | 2000 |
| Patiala | Polyester | 1850 |
+---------+-----------+------+
```

iv.

```
+------------+
| AVG(RATE) |
+------------+
| 1775.0000 |
+------------+
```

½ mark each for each correct output

27 Write a function countbb( ) in Python, which reads the contents from a text file 'article.txt' and displays number of occurrences of words 'bat' and 'ball' (in all possible cases) to the screen.

Example:

If the content of file article.txt is as follows:

Bat and ball games are field games played by two opposing teams. Action starts when the defending team throws a ball at a dedicated player of the attacking team, who tries to hit it with a bat and run between various safe areas in the field to score runs (points). The defending team can use the ball in various ways against the attacking team's players to force them off the field when they are not in safe zones, and thus prevent them from further scoring. The best known modern bat and ball games are cricket and baseball, with common roots in the 18th-century games played in England.

The countbb( ) function should display as:

Number of times bat occurs is 3

Number of times ball occurs is 5

OR

Write a function SOnly( ) in Python, which reads the contents from a text file 'news.txt' and creates another file 'modnews.txt'. New file contains only those lines that starts with an alphabet.

Example:

If the content of file news.txt is as follows:

This is Peter from California.

24th street is where I live.

__name__ is used in Python functions.

User defined functions is what I am presently reading.

Upon execution of function Sonly( ) file modnews.txt should contain:

This is Peter from California.

User defined functions is what I am presently reading.

Answer:

```
def countbb():
    fin = open('article.txt', 'r')
    data = fin.read()
    fin.close()
    L = data.split()
    bat=ball=0
    for i in L:
        i = i.rstrip(".,;-'")
        if i.upper() == 'BAT':
            bat += 1
        elif i.upper() == 'BALL':
            ball += 1
    print("Number of times bat occurs",bat)
    print("Number of times ball occurs",ball)
```

½ mark for correct function header

½ mark for correct opening of file

½ mark for correct closing of file
½ mark for correct reading of data
½ mark for correct loop and correct condition
½ mark for correct printing of output

OR

```
def SOnly():
    fin = open('news.txt','r')
    L = fin.readlines()
    fin.close()
    for i in L:
        if i[0].isalpha()==False:
            L.remove(i)
    fout = open('modnews.txt','w')
    fout.writelines(L)
    fout.close()
```

½ mark for correct function header
½ mark for correct opening of files
½ mark for correct closing of files
½ mark for correct reading of data
½ mark for correct preparation of data for second file
½ mark for correct writing data in second file

28 Consider following tables and write queries for situation a and b. Find the output of c and d:

Table: CLUB

CoachID	CoachName	Age	Sports	Dateofapp	Pay	Sex
1	KUKREJA	35	KARATE	1996-03-27	1000	M
2	RAVINA	34	KARATE	1998-01-20	1200	F
3	KARAN	34	SQUASH	1998-02-19	2000	M
4	TARUN	33	BASKETBALL	1998-01-01	1500	M
5	ZUBIN	36	SWIMMING	1998-01-12	750	M
6	KETAKI	36	SWIMMING	1998-02-24	800	F
7	ANKITA	39	SQUASH	1998-02-20	2200	F
8	ZAREEN	37	KARATE	1998-02-22	1100	F
9	KUSH	41	SWIMMING	1998-01-13	900	M
10	SHAILYA	37	BASKETBALL	1998-02-19	1700	M

Table: COACHES

Sportsperson	Sex	Coach_No
AJAY	M	1
SEEMA	F	2
VINOD	M	1
TANEJA	F	3

a. To list names of all coaches with their date of appointment in descending order.
b. To display total pay given to coaches in each sport.

c. SELECT Sportsperson, Coachname FROM Club, Coaches WHERE Coachid = Coach_no;

d. SELECT Sex, MAX(Dateofapp), MIN(Dateofapp) FROM Club GROUP BY Sex;

Answer:

a. SELECT COACHNAME, DATEOFAPP FROM CLUB ORDER BY DATEOFAPP DESC;

b. SELECT SUM(PAY) FROM CLUB GROUP BY SPORT;

c.

```
+--------------+-----------+
| Sportsperson | Coachname |
+--------------+-----------+
| AJAY         | KUKREJA   |
| VINOD        | KUKREJA   |
| SEEMA        | RAVINA    |
| TANEJA       | KARAN     |
+--------------+-----------+
```

d.

```
+------+----------------+----------------+
| sex  | MAX(Dateorapp) | MIN(Dateorapp) |
+------+----------------+----------------+
| F    | 1998-02-24     | 1998-01-20     |
| M    | 1998-02-19     | 1996-03-27     |
+------+----------------+----------------+
```

½ mark for partially correct query (a and b)

1 mark for completely correct query (a and b)

½ mark each for each correct output (c and d)

29 Write a function SumDiv(L,x), where L is a list of integers and x is an integer; passed as arguments to the function. The function returns the sum of elements of L which are divisible by x or x+1.

For example,

If L Contains [10, 27, 12, 20, 22] and x is 5

Then function returns 42 (10+12+20)

Answer:

```
def Sumdiv(L,x):
    sum = 0
    for i in L:
        if i%x==0 or i%(x+1)==0:
            sum += i
    return(sum)
```

½ mark for correct function header

½ mark for correct initialization of sum variable

½ mark for correct loop

½ mark for correct condition

½ mark for correct increment

½ mark for correct return statement

30 A nested list contains the records of Mobiles in the following format:

[[modelno, name, price], [modelno, name, price], [modelno, name, price],....]

Write the following user defined functions to perform given operations on the stack named Mobile:

a. Push operation – To push details (modelno, name, price) of those mobiles which has price lower than 10000. Make a note that there cannot be more than 20 elements in stack Mobile.
b. Pop operation – To pop elements from stack one by one and display them. Also, display "Underflow" when stack becomes empty.

For example,

If the list contains

[['V20', 'Vivo 20 SE', 18000], ['S11', 'Lava S11', 8900], ['i88', 'IPro 88 SE', 6500], ['ip13', 'iPhone 13', 125000]]

The stack should contain:

['i88', 'IPro 88 SE', 6500]
['S11', 'Lava S11', 8900]

The Output should be:

['i88', 'IPro 88 SE', 6500]
['S11', 'Lava S11', 8900]
Underflow

OR

A Dictionary Medal contains the details of schools and medals won by them in following format {school_name:medals_won}.

Write a function Push(Medal) in Python that pushes those school names in stack named SCHOOL which has won more than 3 medals. Maximum capacity of stack SCHOOL is 15. Function also shows number of items pushed in stack. If number of items exceeds 15 then it shows OVERFLOW.

For example:

If dictionary Medal contains

{'KV1':5, 'KV2':2, 'KV3':4, 'KV4':1, 'KV5':7}

Then stack should contain

KV5
KV3
KV1

The output should be:

Number of item pushed in stack Medal are 3

Answer:

```
def Push(L, mobile):
    for i in L:
        if i[2]<10000 and len(mobile)<20:
            mobile.append(i)
        elif len(mobile)>=20:
            print("OVERFLOW")
            break
def Pop(mobile):
    while len(mobile)>0:
        print(mobile.pop())
    print("Underflow")
```

½ mark for correct function headers
½ mark for correct loop and condition in Push
½ mark for correct push using append
½ mark for correct condition for Overflow
½ mark for correct pop statement and loop
½ mark for correct printing of overflow

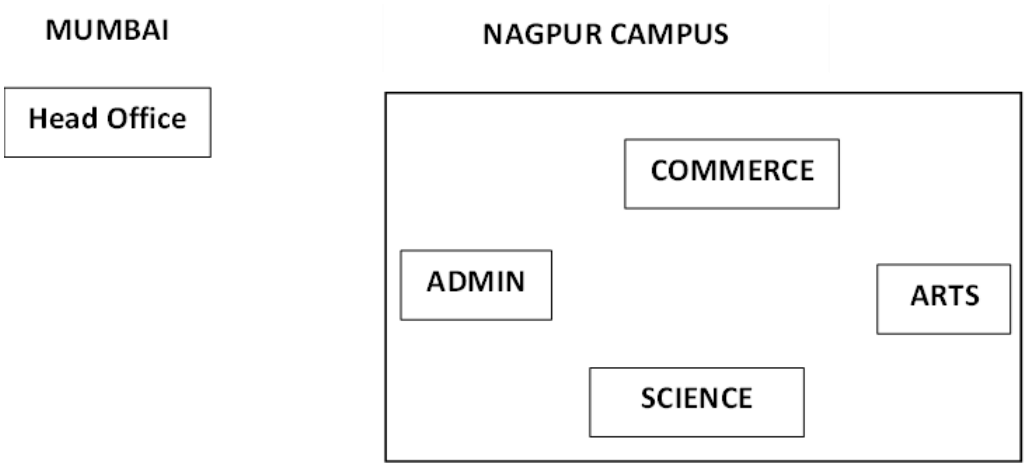
OR

```
def Push(Medal):
    x=0
    for sc in Medal:
        if Medal[sc]>3 and len(SCHOOL)<15:
            SCHOOL.append(sc)
            x+=1
        elif len(SCHOOL)>=15:
            print("OVERFLOW")
            break
    print("Number of item pushed in stack Medal are",x)
```

½ mark for correct function header
½ mark for correct loop
½ mark for correct condition
½ mark for correct append statement
½ mark for correct overflow condition
½ mark for correct printing of output

31 Superior Education Society is an educational Organization. It is planning to setup its Campus at Nagpur with its head office at Mumbai. The Nagpur Campus has 4 main buildings – ADMIN, COMMERCE, ARTS and SCIENCE.

You as a network expert have to suggest the best network related solutions for their problems raised in a to e, keeping in mind the distances between the buildings and other given parameters:



Shortest distances between various buildings:

ADMIN to COMMERCE – 55 m
ADMIN to ARTS – 90 m
ADMIN to SCIENCE – 50 m
COMERCE to ARTS – 55 m
COMMERCE to SCIENCE – 50 m

ARTS to SCIENCE - 45 m
MUMBAI Head Office to NAGPUR Campus – 850 KM
Number of Computers installed at various buildings are as follows:
ADMIN – 110
COMMERCE – 75
ARTS – 40
SCIENCE – 12
MUMBAI Head Office – 20

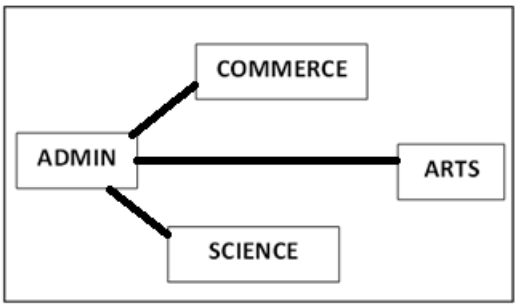
a. Suggest the most appropriate location of the server inside the Nagpur Campus to get the best connectivity for maximum number of computers. Justify your answer.
b. Suggest and draw the cable layout to efficiently connect various buildings within the Nagpur campus for connecting the computers.
c. Which of the following will you suggest to establish the online face-to-face communication between the people in the ADMIN office of Nagpur Campus and Mumbai Head office?
   i. Cable TV
   ii. E-mail
   iii. Video Conferencing
   iv. Text Chat
d. Suggest the placement of following devices with appropriate reasons:
   i. Switch/Hub
   ii. Repeater
e. Suggest the device/software to be installed in Nagpur Campus to take care of data security and unauthorized access.

Answer:

a. The most suitable building to house the server is ADMIN building because it has maximum number of computers and as per 80:20 rule this building will have the maximum amount of network traffic.
½ mark for correct answer
½ mark for correct justification

b.

NAGPUR CAMPUS



1 mark for correct diagram

c. iii. Video Conferencing
1 mark for correct diagram

d.

i. Switch/Hub will be placed in every building to provide network connectivity to all devices inside the building.

ii. **Repeater will not be required as there is not cable running for more than 100 meters.**

½ mark each for each correct reason

e. **The device/software that can be installed for data security and to protect unauthorized access is Firewall.**

1 mark for correct answer

32 a. Write the output of the Code given below:

```
x = 15
def add(p=2, q=5):
    global x
    x = p+q+p*q
    print(x,end='@')
m = 20
n = 5
add(m,n)
add(q=10, p = -3)
```

b. The code given below inserts the following record in table Garment:

GCode – integer
GName – string
Rate – decimal
Qty – integer
CCode = integer

Write missing Statements (Statement 1, Statement 2 and Statement 3) to complete the code:

```
import mysql.connector as mycon
cn = mycon.connect(host='localhost', user='test', password='None', database='cloth')
cur = _____ #Statement 1
while True:
    GCode = int(input("Enter Garment Code = "))
    GName = input("Enter Garment Name = ")
    Rate = float(input("Enter Rate = "))
    Qty = int(input("Enter Quantity = "))
    CCode = int(input("Enter Cloth Code = "))
    q = "insert into Garment Values ({}, '{}', {}, {}, {}".format(GCode, GName, Rate, Qty, CCode)
    cur._____(q) #Staatement 2
    _____ #Statement 3
    ans = input("Do you have more records (Y/N)=")
    if ans.upper()=='N':
        break
print("Records Successfully Saved")
cn.close()
```

OR

a. Write the output of the Code given below:

```
def Timing(T, m=0):
```

```
        print("Present Time is",end=':')
        if m>10 and m<=20:
            print("Quarter Past",T)
        elif m<=40:
            print("Half Past",T)
        elif m<=59:
            print("Quarter to",T+1)
        else:
            print("Incorrect Minutes")
    Timing(5,18)
    Timing(11)
    Timing(12,60)
```

b. The code given below reads those records from table Garment which has Qty less than 50. Records in table Garments are stored with following attributes:

GCode – integer
GName – string
Rate – decimal
Qty – integer
CCode = integer

Write missing Statements (Statement 1, Statement 2 and Statement 3) to complete the code:

```
import mysql.connector as mycon
cn = mycon.connect(host='localhost', user='test', password='None', database='cloth')
cur = _____                    #Statement 1
cur._____                      #Staatement 2 (Create & Execute Query)
G = _____                      #Statement 3 Read complete result of query
print("Required records are:")
for i in G:
    print(i)
cn.close()
```

Answer:

a. 125@-23@
1 mark each for each correct output

b. Statement 1: cur = cn.cursor()
Statement 2: cur.execute(q)
Statement 3: cn.commit()
1 mark each for each correct answer

OR

a. Present Time is:Quarter Past 5
Present Time is:Half Past 11
Present Time is:Incorrect Minutes
½ mark for 1 correct output
1 mark for 2 correct outputs
2 marks for all correct outputs

b. Statement 1: cn.cursor()
Statement 2: cur.execute("Select * from Garment where Qty<50")

Statement 3: cur.fetchall()

1 mark each for each correct answer

33 What is the difference between CSV file and Text File? Write a program in Python that defines and calls the following functions:

Insert( ) – To accept details of clock from the user and stores it in a csv file 'watch.csv'. Each record of clock contains following fields – ClockID, ClockName, YearofManf, Price. Function takes details of all clocks and stores them in file in one go.

Delete( ) – To accept a ClockID and removes the record with given ClockID from the file 'watch.csv'. If ClockID not found then it should show a relevant message. Before removing the record it should print the record getting removed.

OR

Give one advantage of using CSV file over Binary file. Write a program in Python that defines and calls the following functions:

saving( ) – To accepts details of equipments from the user in following format (ID, Name, Make, Price) and save it in a csv file 'parts.csv'. Function saves one record at a time.

search( ) – To accept two prices and displays details of those equipments which has price between these two values.

Answer:

Text files are plain text files which are used to store any kind of text which has no fixed format. whereas, CSV files are also text files but they can store information in a specific format only.

```
def Insert():
    L=[]
    while True:
        ClockID = input("Enter Clock ID = ")
        ClockName = input("Enter Clock Name = ")
        YearofManf = int(input("Enter Year of Manufacture = "))
        price = float(input("Enter Price = "))
        R = [ClockID, ClockName, YearofManf, price]
        L.append(R)
        ans = input("Do you want to enter more records (Y/N)=")
        if ans.upper()=='N':
            break
    import csv
    fout = open('watch.csv','a',newline='')
    W = csv.writer(fout)
    W.writerows(L)
    fout.close()
    print("Records successfully saved")
def Delete():
    ClockID = input("Enter Clock ID to be removed = ")
    found = False
    import csv
    fin = open('watch.csv','r')
    R = csv.reader(fin)
```

```
    L = list(R)
    fin.close()
    for i in L:
        if i[0] == ClockID:
            found=True
            print("Record to be removed is:")
            print(i)
            L.remove(i)
            break
    if found==False:
        print("Record not found")
    else:
        fout = open('watch.csv','w',newline='')
        W = csv.writer(fout)
        W.writerows(L)
        fout.close()
        print("Record Successfully Removed")

while True:
    print("1. Add Clock Details")
    print("2. Remove Clock Details")
    print("3. Exit")
    ch = int(input("Enter your choice(1-3)="))
    if ch==1:
        Insert()
    elif ch==2:
        Delete()
    elif ch==3:
        print("Thanks for using this program")
        break
    else:
        print("Incorrect Choice. Please re-enter")
```

1 mark for correct difference between csv and text files.

Insert() function

½ mark for correct data input and making list

½ mark for correctly opening file

½ mark for correctly writing record

Delete() function

½ mark for correctly copying data in list

½ mark for correctly identifying record and removing it from the list

½ mark for correctly showing not found message

½ mark for correctly re-writing remaining records

Main

½ mark for correct main program

OR

CSV files stores records in text format that can be read and manipulated by other spreadsheet software like excel. However, binary files stores records in raw format and can only be read and managed by programs only.

```
def saving():
    L=[]
    ID = input("Enter ID = ")
    name = input("Enter Name = ")
    Make = input("Enter Make = ")
    price = int(input("Enter Price = "))
    R = [ID, name, Make, price]
    L.append(R)
    import csv
    fout = open('parts.csv','a',newline='')
    W = csv.writer(fout)
    W.writerows(L)
    fout.close()
    print("Record successfully saved")
def search():
    price1 = int(input("Enter Starting Price Range = "))
    price2 = int(input("Enter Ending Price Range = "))
    found = False
    import csv
    fin = open('watch.csv','r')
    R = csv.reader(fin)
    L = list(R)
    fin.close()
    for i in L:
        if int(i[3])>=price1 and int(i[3])<=price2:
            found=True
            print(i)
    if found==False:
        print("Record not found")

while True:
    print("1. Add Equipment Details")
    print("2. Search Equipments based on Price Range")
    print("3. Exit")
    ch = int(input("Enter your choice(1-3)="))
    if ch==1:
        saving()
    elif ch==2:
        search()
    elif ch==3:
        print("Thanks for using this program")
        break
    else:
```

```
        print("Incorrect Choice. Please re-enter")
```

1 mark for correct advantage of CSV file.

saving() function

½ mark for correct data input and making list

½ mark for correctly opening file

½ mark for correctly writing record

search() function

½ mark for correctly copying data in list

½ mark for correctly identifying record

½ mark for correctly displaying record

½ mark for correctly showing not found message

Main

½ mark for correct main program

34 Mayanti just started to work for a sports academy having several branches across India. The sports academy appoints various trainers to train various sports. She has been given the task to maintain the data of the trainers. She has made a table called TRAINERS in the database which has following records:

Table: TRAINER

TrainerNo	Name	City	HireDate	Salary
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Based on the data given above answer the following questions:

a. Can City be used as Primary key for table TRAINER? Justify your answer.

b. What is the degree and cardinality of the table TRAINER? If we add two rows and remove three rows from table TRAINER. Also if we add another attribute in the table, what will be the degree and cardinality of the table TRAINER will become?

c. Write statements for:

   iii. Insert a new record in table TRAINER with values, TrainerNo = 107, Name = Swastik, HireDate = 1999-01-22, Salary = 90000.

   iv. Increase the salary of those Trainer having city as DELHI by 5000.

OR

c. Write Statements for:

   iii. Removes those records from table TRAINER who were hired after year 2000.

   iv. Add a new column Grade with datatype as Varchar and maximum size as 2.

Answer:

a. No. City cannot be used as Primary key for table TRAINER because it has duplicate values in it.

½ mark for correct identification

½ mark for correct justification

b. Before Changes: Degree = 5, Cardinality = 6

After Changes: Degree = 6, Cardinality = 5

½ mark for correct Degree and Cardinality before changes

½ mark for correct Degree and Cardinality after changes

c.

i. INSERT INTO Trainer (TrainerNo, Name, HireDate, Salary) VALUES (107, 'Swastik', '1999-01-22', 90000);

ii. UPDATE Trainer SET Salary = Salary + 5000 WHERE City = 'DELHI';

OR

i. DELETE FROM Trainer WHERE Year(HireDate)>2000;

ii. ALTER TABLE Trainer ADD (Grade Varchar(2));

1 mark each for each correct query

½ mark each for partially correct query

35 Tarun Nair is working under XYZ Incorporation which deals with exporting of goods to foreign countries. To keep track of inventory he is creating a Python program to store the information of item number and quantity in a binary file inventory.dat. For that he has written the following code. Go through the code given and solve problems given below:

```
def write(ino,qty):
    F = open(_____)                #Mark 2
    L= _____                       #Mark 3
    L.append([ino,qty])
    F.close()
    F=open('inventory.dat','wb')
    pickle.dump(L,F)
    F.close()

def Receive(ino,qty):
    F=open("inventory.dat","rb")
    L=pickle.load(F)
    F.close()
    for i in range(len(L)):
        if L[i][0] == ino:
            L[i][1] += qty
    F=open("inventory.dat",'wb')
    pickle.dump(L,F)
    _____                          #Mark 4

def Sent(ino,qty):
    with open("inventory.dat","rb") as F:
        L=pickle.load(F)
        for i in range(len(L)):
            if L[i][0] == ino:
                L[i][1] -= qty
    with open("inventory.dat",'wb') as F:
        pickle.dump(L,F)
```

a. Write statement to open the file at Mark 2 to read records from the file.
b. Write statement at Mark 3 to read the content of binary file in list L.
c. Write statement at Mark 4 to close the file.
d. Why there is no need to close the file in function Sent( )?

Answer:

a. F=open('inventory.dat','rb)
b. L=pickle.load(F)
c. F.close()
d. In function Sent() file is opened using with statement which implicitly closes the file and hence there is no need to separately close the file.

1 mark each for each correct answer

****

KENDRIYA VIDYALAYA SANGATHAN, MUMBAI REGION
MARKING SCHEME OF SAMPLE QUESTION PAPER
CLASS-XII (SESSION 2022-23)
SUBJECT: COMPUTER SCIENCE (083)

<table>
<tr><td></td><td>SECTION-1</td><td></td></tr>
<tr><td>1.</td><td>a) True</td><td>1</td></tr>
<tr><td>2.</td><td>b) for_is</td><td>1</td></tr>
<tr><td>3.</td><td>b) Tup[2] = 90</td><td>1</td></tr>
<tr><td>4.</td><td>a) True</td><td>1</td></tr>
<tr><td>5.</td><td>d) Error</td><td>1</td></tr>
<tr><td>6.</td><td>d) Open a new fresh file, first write then read</td><td>1</td></tr>
<tr><td>7.</td><td>b) split( )</td><td>1</td></tr>
<tr><td>8.</td><td>flush( )</td><td>1</td></tr>
<tr><td>9.</td><td>b) Statement-2 and statement-3</td><td>1</td></tr>
<tr><td>10.</td><td>Like</td><td>1</td></tr>
<tr><td>11.</td><td>c) pickle.dump(dataobject,fileobject)</td><td>1</td></tr>
<tr><td>12.</td><td>List</td><td>1</td></tr>
<tr><td>13.</td><td>a) router</td><td>1</td></tr>
<tr><td>14.</td><td>d) 47</td><td>1</td></tr>
<tr><td>15.</td><td>c) rowcount</td><td>1</td></tr>
<tr><td>16.</td><td>b) list</td><td>1</td></tr>
<tr><td>17.</td><td>a) Both A and R is true and R is the correct explanation of A.</td><td>1</td></tr>
<tr><td>18.</td><td>d) A is false but R is true.</td><td>1</td></tr>
<tr><td></td><td>SECTION-B</td><td></td></tr>
<tr><td>19.</td><td>
<table>
<tr><th>Incorrect</th><th>Correct</th></tr>
<tr><td>str=list("Python Program@2021<u>')</u>
for Y <u>is</u> range(len(str)-1):
if Y==7:
<u>str</u>[Y]=str*2
elif(str[Y].isupper<u>):</u>
str[Y]=str*3
elif(str[Y].isdigit()):
str[Y]='D'
print(str)</td><td>str=list("Python Program@2021<u>”)</u>
for Y <u>in</u> range(len(str)-1):
if Y==7:
<u>str</u>[Y]=str*2
elif(str[Y].isupper<u>)):</u>
str[Y]=str*3
elif(str[Y].isdigit()):
str[Y]='D'
print(str)</td></tr>
</table>
</td><td>2</td></tr>
<tr><td>20.</td><td>➢ Hub passes the frame to every port whereas switch passes the frame to a specific port, because it keeps a record of MAC address of nodes in a network.
➢ Hub shares its bandwidth with each and every port, so bandwidth divided among all the nodes, which will degrade performance whereas switch allocates full bandwidth to each of its port. So user always access maximum amount of bandwidth.
➢ Speed of switch is faster than hub.</td><td>2</td></tr>
</table>

<table>
<tr><td></td><td>OR
Star topology is better than bus topology because:
• It is faster
• It has less traffic
• Expansion is easy i.e. easy to add new node
• It has dedicated point to point connection
• Central Node Control
• Less chances of data collision
• Easy fault detection
• Signal transmission is bidirectional</td><td></td></tr>
<tr><td>21.</td><td>a) [11,80]
b) ['violet', 'indigo', 'green', 'red']</td><td>2</td></tr>
<tr><td>22.</td><td>Foreign Key: A non-key attribute which is primary key in another table.
Syntax:
ALTER TABLE table-name
ADD foreign key (field_name) references parent-table-name(attribute-name);</td><td>2</td></tr>
<tr><td>23.</td><td>a)
i) ARPANET: Advanced Research Project Agency Network
ii) URL : Uniform Resource Locator

b) Web hosting is a service that allows organizations and individuals to post a website on to the Internet.
A web host or web hosting service provider, is a business that provides the technologies and services needed for the website or webpage to be viewed in the Internet.</td><td>2</td></tr>
<tr><td>24.</td><td>%EVLO%YRts
OR
4
6
20</td><td>2</td></tr>
<tr><td>25.</td><td>Constraints: Conditions on the attributes in a relation.
Syntax to add primary key constraint:
ALTER TABLE table-name
ADD PRIMARY KEY (attribute-name);
OR
<table>
<tr><th>Equi-Join</th><th>Natural Join</th></tr>
<tr><td>In this join columns from two tables are compared for equality.</td><td>In this join only one of the identical columns existing in both tables is present.</td></tr>
<tr><td>It shows duplicate columns.</td><td>It eliminates the duplicate columns.</td></tr>
</table></td><td>2</td></tr>
</table>

	SECTION-C	
26.	**a)** **Degree**: Number of columns / attributes in a relation. **Cardinality**: Number of rows / tuples in a relation. **b)** **(i)** **COUNT(*)** | **Make** 2 | Samsung **(ii)** **Max(Manufacturing_Date)** | **Min(Price)** 2022-02-16 | 15000 **(iii)** Empty Set **(iv)** **AVG(Price)** 27000	**1 + 2**

27.	**def CountYouMe( ):**
	fin=open("BIOGRAPHY.TXT", "r")
	s=fin.read( )
	L=s.split( )
	y=0
	m=0
	for word in L:
	if word.lower( )=="you":
	y+=1
	elif word.lower( )=="me":
	m+=1
	print("Count of you in file: ",y)
	print("Count of me in file: ", m)
	fin.close( )
	OR
	def CountDigits( ):
	f=open("MyData.txt",'r')
	s=f.read( )
	count=0
	for i in s:
	if i.isdigit( )==True:
		3

```
            count+=1

    print("Number of digits are: ",count)
    f.close( )
```

28. **a)**

(i)

Gtype	**count(*)**
Outdoor	2
Indoor	1

(ii)

Max(DOB)	**Min(DOB)**
2002-05-12	2000-09-21

(iii)

P.Pname	**P.State**	**G.Gname**
Hemali	Gujarat	Tennis
Gauravi	Bihar	Cricket
Divya	Rajasthan	Cricket
Ravita	Punjab	Badminton

(iv)

Pname	**Gtype**	**DOB**
Divya	Outdoor	2002-05-12
Ashok	Indoor	2000-12-12

b) ALTER TABLE GAME RENAME AS SPORTS;

2

1

29.

```
def EvenOdd(L):
    n=len(L)
    for i in range(n):
        if L[i]%2!=0:
            L[i]=L[i]+1
        else:
            L[i]=L[i]+2
    print(L)
```

3

30.

```
L=[ ]
def PUSH(D):
    for i in D:
        if D[i]>20000:
            L.append(i)
    print(L)
def POP():
    if L==[]:
        print("Stack is empty")
    else:
        L.pop()
    print(L)
```

3

SECTION-D

31.

(i) TECHNICAL BLOCK, because it has maximum number of computers. So, it fulfills the 80:20 network rule.

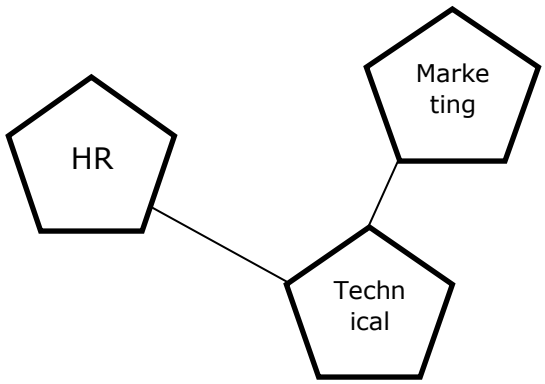
(ii) Switch/Hub

(iii)

- HR and Marketing Block : LAN
- Head Office and Jaipur Office: WAN

(iv) Optical Fibre

(v) Star Topology



5

32.

a)

64 @ 71

576 @ 647

10 @ 12 @ 647

b)

(i) mydb.cursor()

(ii) mycursor.execute(qry)

(iii) mydb.commit()

OR

2 + 3

a)

i) 30-40-50-

Min value of BEGIN = 1 and LAST=2

b)

(i) mydb.cursor()

(ii) fetchall()

(iii) result

33. **(i)** **5**

```
def ModifyData():
    import pickle
    adhr=int(input("Enter adhaar number to modify a record: "))
    f=open("PEOPLE.dat", 'rb+')
    L=pickle.load(f)
    Y=[ ]
    found=0
    for P in L:
        if P[0]==adhr:
            nme=input("Enter new name: ")
            P[0]=nme
            found=1
        Y.append(P)

    if found==1:
        f.seek(0)
        pickle.dump(Y,f)
        print("Record Modified Successfully")
    else:
        print("Record not found")
    f.close( )
```

(ii)

```
def Show_Record():
    import pickle
    f=open("PEOPLE.dat", 'rb')
    H=pickle.load(f)
    for P in H:
        if P[3]>45:
            print(P)
    f.close( )
```

OR

(i)

```
def WriteProduct( ):
    import pickle
    f=open("PRODUCT.dat", 'wb')
    L=[ ]
```

	for i in range(7):
	PNo=int(input("Enter Product Number: "))
	Pname=input("Enter Product Name: ")
	Brand=input("Enter brand: ")
	Price=float(input("Enter Price: "))
	D={"pno":PNo, "pname":Pname, "brand":Brand, "price":Price}
	L.append(D)
	pickle.dump(L, f)
	f.close( )
	
	(ii)
	def CountRecord(Brand):
	import pickle
	f=open("PRODUCT.dat", 'rb')
	L=pickle.load(f)
	count=0
	for D in L:
	if D["brand"]==Brand:
	count+=1
	f.close( )
	return count	

	SECTION-E	

34.	(i) Book_No
	(ii) Degree= 4 and Cardinality = 6
	(iii)
	a) insert into books (Book_No, BookName, Price)values(777,"Poet of India", 225.00);
	b) Select Price+Price*0.05 From Books Where BookName like "I%";
	
	OR (Option for iii part only)
	(iii)
	a) DELETE from BOOKS Where Quantity>7;
	b) ALTER TABLE BOOKS ADD AUTHOR varchar(40);
		4

35.	(i) csv (ii) 'a' (iii) reader (iv) close()	**4**

Subject Code | 0 | 8 | 3 | **Roll No.** | | | | | |

KENDRIYA VIDYALAYA SANGATHAN, MUMBAI REGION

SAMPLE QUESTION PAPER (Session 2022-23)

Subject: Computer Science (Theory) **Class: XII**

Time Allowed: 3:00 Hours **Max. Marks - 70**

General Instructions:

- *This question paper contains five sections, A to E.*
- *All questions are compulsory.*
- *Section-A has 18 questions carrying 01 mark each.*
- *Section-B has 07 very short answer type questions carrying 02 marks each.*
- *Section-C has 05 short answer type questions carrying 03 marks each.*
- *Section-D has 03 long answer type questions carrying 05 marks each.*
- *Section-E has 02 questions carrying 04 marks each. One internal choice is given in Q.34 against part-iii only.*
- *All programming questions are to be answered using python language only.*

	SECTION-A	
1.	Line indentation is rigidly enforced in python: a) True b) False	1
2.	Find valid identifier among the following: a) and b) for_is c) simple-interest d) 4you	1
3.	Suppose a tuple Tup is declared as Tup = (12, 15, 63, 80) Which of the following is incorrect? a) print(Tup[1]) b) Tup[2] = 90 c) print(min(Tup)) d) print(len(Tup))	1
4.	Consider the given expression: not 12 > 6 and 7 < 17 or not 12 < 4 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 given code. d1 = {"abc" : 5, "def" : 6, "ghi" : 7} print (d1[0]) a) abc b) 5 c) {"abc":5} d) Error	1

6.	What is meaning of "w+" mode: a) Creating a fresh file only b) Open an existing file, first read then write c) Open a existing file, first write then read d) Open a new fresh file, first write then read	1
7.	Which among the following is not a function of tuple? a) count () b) split() c) max() d) min	1
8.	_____ method is used to Transfer data from buffer to Permanent store in data file handling.	1

9.	Which of the following statement(s) would give an error after executing the following code?
	G=10,20,30,40 #statement-1
	print(G**2) #statement-2
	G[1]=35 #statement-3
	R=G+(22,) #statement-4
	print(R) #statement-5
	
	a) statement -1 and statement-5
	b) Statement-2 and statement-3
	c) Statement-1 and statement-4
	d) Statement-1 only
		1

10.	Fill in the blank: The…… keyword is used to select rows that match specified pattern of characters in MySQL.	1
11.	The correct syntax of dump( ) is: a) fileobject=dump(dataobject) b) fileobject.dump(dataobject) c) pickle.dump(dataobject,fileobject) d) pickle.dump(fileobject,dataobject)	1
12.	A result set is extracted from the database using a cursor object by giving the following statement: **records=mycursor.fetchall( )** What will be the data type of 'records' after the execution of above statement?	1
13.	Fill in the blank: A …… is a networking device that connects computer in a network by using packet switching to receive and forward data to the destination. a) Router b) Repeater c) Switch d) Gateway	1
14.	Which among the following is correct output after evaluation of the given	1

	expression: >>> 12 - (3 % 4) // 2 + 6 ** 2 a) 46.5 b) 36 c) 12 d) 47	
15.	Which command is used for counting the number of rows in a database? a) count b) fetchmany c) rowcount d) countrecord	1
16.	readlines( ) method reads the data from the file and returns it into: a) string b) list c) tuple d) file	1
	Q.17 and 18 are Assertion and Reasoning based Questions	
17.	**Assertion (A):** Function invoked by its name. **Reason (R):** A function is a named block of statements. a) Both A and R is true and R is the correct explanation of A. b) Both A and R is 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. e) Both A and R are false	1
18	**Assertion (A):** The csv files can only take comma as delimiter. **Reason (R):** The comma is the default separator character but other popular delimiters include the tab (\t), colon (:) and semi-colon (;) a. Both a and R are true and R is the correct explanation of A. b. Both a and R are true and R is not the correct explanation of A. c. A is true but R is false. d. A is false but R is true. e. Both A and R are false.	1
	SECTION-B	

19.	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	str=list("Python Program@2021')
	for Y is range(len(str)-1):
	if Y==7:
	str[Y]=str*2
	elif(str[Y].isupper():
	str[Y]=str*3
	elif(str[Y].isdigit()):
	str[Y]='D'
	print(str)
		2

20.	Why does switch known as smart hub?	2

	OR How is star topology better than bus topology?	
21.	a) Given the lists L=[25,8,61,80,54,17,11,99] Write the output of print(L[-2:-7:-3]) b) Write Output: colors=["violet", "indigo", "blue", "green", "yellow", "orange", "red"] del colors[4] colors.remove("blue") colors.pop(3) print(colors)	2
22.	What is foreign key? Write syntax to make an attribute as foreign key in existing table.	2
23.	a) Expand the following terms: (i) ARPANET (ii) SMTP b) Define web hosting.	2

24.	**Write output for the following python code:**
	
	def ChangeString(s):
	m="" #empty string
	for i in range(0,len(s)):
	if(s[i].isupper()):
	m=m+s[i].lower()
	elif s[i].islower():
	m=s[i].upper()+m
	else:
	if i%2==0:
	m=m+s[i-1]
	else:
	m="%"+m
	print(m)
	ChangeString('Try2Solve@')
	OR
	
	Predict the output of the Python code given below:
	p=4
	def CheckData(y):
	global p
	print(p+2)
	r=y
		2

```
        p=r+8
    print(p)
    CheckData(12)
    print(p)
```

25. Define constraint. Write syntax to add primary key constraint in existing table. 2

OR

Write difference between Equi Join and Natural join.

SECTION-C

26. a) Define degree and cardinality of a relation in RDBMS. 1 + 2

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

TABLE: ELECTRONICS

Item_ID	IName	Manufaturing_Date	Make	Qty	Price
IT026	Refrigerator	2019-12-15	Samsung	15	16000
IT039	TV	2020-06-25	Samsung	7	28000
IT088	Computer	2020-01-30	Acer	15	44000
IT054	TV	2022-02-16	Sony	10	15000
IT061	Computer	2021-11-17	IFB	12	21000

i. Select COUNT(*), Make From Electronics Group by Make Having COUNT(*)>1;

ii. Select Max(Manufacturing_Date), Min(Price) From Electronics;

iii. Select Item_ID, IName From Electronics Where IName like "%sh%";

iv. Select Avg(Price) From Electronics Where Qty > 10;

27. Write a function CountYouMe( ) in python which reads the content of a text file "BIOGRAPHY.TXT" and counts the words 'You' and 'Me' separately. (Not case sensitive). 3

Example:

If the contents in "BIOGRAPHY.TXT" are as follows:

You are a hero for me
you gifted a book to me which helped me
a lot to learn the programming
It gave me a chance to develop business software

The output of the function should be:

Count of You in file: 2
Count of Me in file: 4

OR

Write a function CountDigits( ) in python which reads the content of a text file "MyData.TXT" and counts number of digits present in the text file.

Example:
If the contents in "MyData.TXT" are as follows:
In 2023 we 22 students will appear in exam for 5 subjects

The output of the function should be:
No. of digits are: 7

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

TABLE: PLAYER

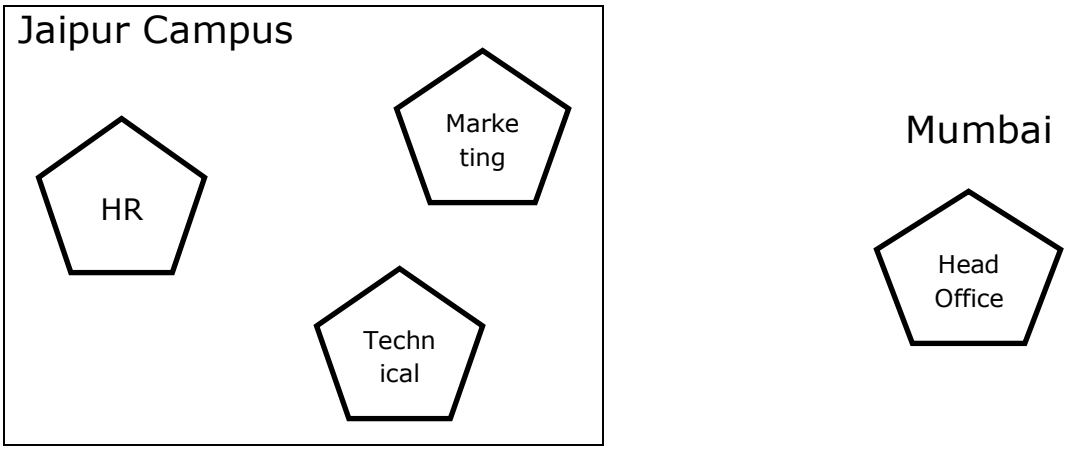
Pcode	Pname	Gender	DOB	State	Gcode
401	Ravita	F	2000-10-09	Punjab	03
402	Gauravi	F	2001-01-22	Bihar	02
403	Rakesh	M	2000-11-29	Haryana	01
404	Divya	F	2002-05-12	Rajasthan	02
405	Hemali	F	2000-09-21	Gujarat	01
406	Ashok	M	2000-12-12	Rajasthan	03

TABLE: GAME

Gcode	Gname	no_of_players	Gtype
01	Tennis	1	Outdoor
02	Cricket	11	Outdoor
03	Badminton	1	Indoor

i. SELECT Gtype, count(*) FROM GAME GROUP BY Gtype;
ii. SELECT Max(DOB), Min(DOB) FROM PLAYER;
iii. SELECT P.Pname, P.State, G.Gname FROM PLAYER P, GAME G WHERE P.Gcode=G.Gcode and Gender= "F";
iv. SELECT Pname, Gtype, DOB FROM PLAYER P, GAME G WHERE P.GCODE=G.GCODE and State="Rajasthan";

	b) Write SQL command to change the table name **Game** to **Sports**.	1
29.	Write a function EvenOdd(L) in python, to add 1 in all odd values and 2 in all even values of the list L. Example: If original elements of the list L are: L= [35, 12, 16, 69, 26] The modified list will be: L= [36, 14, 18, 70, 28]	3
30.	Arun has created a dictionary containing employee name and their salary as key value pair of 05 employees. Create user defined functions to perform the following operations: **i.** Push the keys (name of employee) of dictionary into the stack where the corresponding value (salary) is more than 20000. **ii.** Delete the element from the stack and display the stack after deletion of the element.	3
	SECTION-D	
31.	Hill Tech Services is planning to set up its India campus at Jaipur with its Head Office at Mumbai. The Jaipur campus has 3-main blocks-HR, Technical and Marketing. You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v).	5



Distance between various building blocks:

HR BLOCK to TECHNICAL BLOCK	45 m
HR BLOCK to MARKETING BLOCK	98 m
TECHNICAL BLOCK to MARKETING BLOCK	107 m
Head Office to JAIPUR Campus	1275 KM

Number of computers in each Block:

HR BLOCK	10
TECHNICAL BLOCK	105
MARKETING BLOCK	45

(i) Suggest the most appropriate location of the server inside the JAIPUR campus (out of the 3 blocks), to get the best connectivity for maximum number of computers. Justify your answer.

(ii) Which device will you suggest to be produced by the company for connecting all the computers within each of their offices out of the following devices?

- Switch/Hub
- Modem
- Bridge

(iii) Suggest network type (out of LAN, MAN, WAN) for connecting each of the following set of their offices:

- HR & Marketing Block
- Head Office and Jaipur Office

(iv) Which of the following communication medium, you will suggest to be procured by the company for connecting their local offices in Jaipur for very effective and fast communication?

- Telephone cable
- Optical fiber
- Ethernet cable

(v) Suggest and draw the cable layout (Block to Block) to connect various offices within the Jaipur Campus.

32. **a) Write output for the following python code:** 2

```
def FindOutput(p, q=4, r=75):
    x=p**2*4
    y=x+r
    print(x, "@", y)
    return y

c=FindOutput(q=5,r=7,p=4)
a,b=10,12
c=FindOutput(b,a,c)
print(a,"@",b,"@",c)
```

b) The code given below inserts the following record in the table Employee: 3

Emp_id – integer
Ename – string
Date_of_Birth – date
Salary – float

Note the following to establish connectivity between Python and MYSQL:
Username is **root**
Password is **computer**
The table exists in a MYSQL database named **Employee**.
The details (Emp_id, Ename, Date_of_Birth, Salary) are to be accepted from the user.
Write the following missing statements to complete the code:

i. **Statement 1** – to form the cursor object
ii. **Statement 2** – to execute the command that inserts the record in the table Employee.
iii. **Statement 3**- to add the record permanently in the database

```
import mysql.connector as mycon
def AddRecord():
    mydb=mycon.connect(host="localhost",user="root", password=
    "computer", database="bank")
    mycursor= _____      #Statement 1
    Emp_id=int(input("Enter Employee Id: "))
    Ename=input("Enter Employee Name : ")
    dob=input("Enter Date of Birth : ")
    salary=float(input("Enter Salary : "))
    qry="insert into Employee values ({},'{}','{}',{})".format (Emp_id,
    Ename, dob, salary)
    _____          #Statement 2
    _____          # Statement 3
    print("Data Added successfully")
```

OR

a) What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum values that can be assigned to each of the variables BEGIN and LAST.

```
import random
VALUES = [10, 20, 30, 40, 50, 60, 70, 80]
BEGIN = random.randint (1, 3)
LAST = random.randint(2, 4)
```

	for I in range (BEGIN, LAST+1):
	print (VALUES[I], end = "-")
	
	(i) 30-40-50- (ii) 10-20-30-40-
	(iii) 30-40-50-60- (iv) 30-40-50-60-70-
	
	b) The code given below extract and display the following record from the table Employee.
	Note the following to establish connectivity between Python and MYSQL:
	Username is **root**
	Password is **computer**
	The table exists in a MYSQL database named **Employee**.
	The details (Emp_id, Ename, Date_of_Birth, Salary) are present in table.
	Write the following missing statements to complete the code:
	i. **Statement 1** – to form the cursor object
	ii. **Statement 2** – to retrieve all records from result set object as per query.
	iii. **Statement 3** - sequence object in the loop to display the records
	
	import mysql.connector as mycon
	def ShowRecord():
	mydb=mycon.connect(host="localhost", user="root", password= "computer", database="bank")
	mycursor= _____ **#Statement 1**
	qry="select * from employee where salary>30000"
	mycursor.execute(qry)
	result=mycursor._____ **#Statement 2**
	for record in _____ : **#Statement 3**
	print(record)	

33.	Write difference between text file and binary file. A binary file **"PEOPLE.DAT"** has the following structure: [Adhaar_number, Name, Gender, Age] **i.** Write a user defined function ModifyData( ) by taking adhaar number of a person from user and update name of a person in binary file PEOPLE.DAT. **ii.** Write a function Show_Record( ) in Python that would read contents of the file "PEOPLE.DAT" and display the details of those people whose age is above 45. **OR** Write difference between seek() and tell( ) methods.	5

A binary file "**PRODUCT.dat**" has the following structure:
{"pno":PNo, "pname":Pname, "brand":Brand, "price":Price}

i. Write a user defined function WriteProduct( ) to input data for 7 products and add them to PRODUCT.dat .

ii. Write a function CountRecord(Brand) in Python which accepts the brand name as parameter and count and return number of products of the given brand which are stored in the binary file "PRODUCT.dat" .

SECTION-E

34. A librarian is considering to maintain the inventory of books using SQL. As a database administrator, he/she has decided that : 1 + 1 + 2

- Name of the database - MyLibrary
- Name of the table - BOOKS
- The attributes in BOOKS table are as follows:
  - Book_No - numeric
  - BookName – character of size 20
  - Price - numeric
  - Quantity – numeric

Table: BOOKS

Book_No	BookName	Price	Quantity
504	Indian History	245.50	10
685	Journey of Village	168.50	05
847	Evolution of Computer	350.00	15
321	Inside the Earth	425.00	10
456	Indian Farmer	200.00	08
259	My Village My Country	200.00	05

i. Identify the attribute which is the best suitable to be declared as a primary key.

ii. Write the degree and cardinality of the table BOOKS.

iii. Write the statements to:

a. Insert the following data into the attributes Book_No, BookName and Price respectively in the given table BOOKS. BOOK_No = 777, BookName = "Poet of India" and Price = 225.00

	b. Increase the price of books by 5% whose book name begins with letter 'I'. **OR (option for part iii only)** **iii.** **a.** Delete the records of those books whose quantity is more than 7. **b.** Add a column AUTHOR in the table with data type is varchar with 40 characters.	

35.	Alok Kumar of class 12 is writing a program to create a CSV file "project.csv" which will contain student name and project name for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.
	
	`import _____ # Line 1`
	`def AddProject (StudentName, ProjectName): # to write data into the CSV file`
	`f=open(' project.csv', '_____') # Line 2`
	`newFileWriter = csv.writer(f)`
	`newFileWriter.writerow([Sname,Pname])`
	`f.close( )`
	
	`#csv file reading code`
	`def ReadProject( ): # to read data from CSV file`
	`with open(' project.csv', 'r') as newFile:`
	`newFileReader = csv._____(newFile) # Line 3`
	`for row in newFileReader:`
	`print (row[0],row[1])`
	`newFile._____ # Line 4`
	
	`AddProject("Ranjana", "Traffic Control System")`
	`AddProject("Ankit", "Parking Allotment Problem")`
	`AddProject("Krishna", "Billing System")`
	`ReadProject( )`
	
	i. Name the module he should import in Line 1.
	ii. In which mode he has to open the file in Line-2, to add data into the file.
	iii. Fill in the blank in Line 3 to read the data from a csv file.
	iv. Fill in the blank in Line 4 to close the file.
		4

Class: XII Session: 2022-23

Computer Science (083)

(Theory)

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

hoursGeneral 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 isgiven in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

SECTION A		
1.	Python loops can also have else caluse(True/False)	1
Ans	True	
2.	Which of the following is not a keyword? a) eval b) assert c) nonlocal d) pass	1
Ans	Eval	
3	What will be the output of the following code snippet ? rec={"Name":"Python","Age":"20","Addr":"NJ","Country":"USA"} id1=id(rec) del rec rec={"Name":"Python","Age":"20","Addr":"NJ","Country":"USA"} id2=id(rec) print(id1==id2) a) True b) False c)1 d) Exception	1
Ans	True	
4	What is the output of this code? >>>int("3"+"4") a) "7" b)"34" c) 34 d) 24	1
Ans	34	
5	Select the correct output of the code x="apple,pear,peach" y=x.split(" , ") for z in y: print(z) a) apple,pear,peach b) pear,apple,peach c) peach,apple,pear d) Error	1
Ans	apple,pear,peach	
6	To read the next line of the file from a file object infi,we use a) infi.read(all) b)infi.read() c)infi.readline() d) infi.readlines()	1
Ans	infi.readline()	
7	Fill in the Blank:	1

	_____is not a legal constraint for a CREATE TABLE command ? a) Primary Key b) Foreign Key c) Unique d) Distinct	
Ans	Distinct	
8	In SQL, Which commamd(s) is(are) used to change a table's structure/characteristic ? a) ATLER TABLE b) MODIFY TABLE c) CHANGE TABLE d) ALL OF THESE	1
Ans	ALTER TABLE	

9	Which of the following statement(s) would give error after executing the following code?
	s1='must' #statement 1
	s2='try' #statement 2
	n1=10 #statement 3
	n2=3 #statement 4
	print(s2*s1) #statement 5
	print(s1+s2) #statement 6
	print(s1+n1) #statement 7
	a) statement 4
	b) statement 5 and 7
	c) statement 6
	d) No Error
		1

Ans	Statement 5 and 7	
10	Fill in the blanks DML Stand for_____ a) Different Mode Level b) Data Model Language c) Data Mode Lane d) Data Manipulation Language	1
Ans	Data manipulation Language	
11.	Which of the following command is used to open a file "c:\pat.txt" for writing in binary format only? a) fout=open("c:\pat.txt","w") b) fout=open("c:\\pat.txt","wb") c) fout=open("c:\pat.txt","w+") d) fout=open("c:\\pat.txt","wb+")	1
Ans	fout=open("c:\\pat.txt","wb")	
12.	All aggregate function except_____ignore null values in their output collection a) count(attribute) b) count(*) c) avg() d) sum()	1
Ans	count(attribute)	
13.	_____Network device that regenerates and retransmit the whole signal a) Modem b) Hub c) Repeater d) Bridge	1
Ans	Repeater	
14.	What will be the value of the following expression ? 14+13%15 a) 14 b) 27 c) 12 d) 0	1

Ans	27	
15.	The sum(), if used in a condition, is used with caluse a) Group By b) With c) Where d) Having	1
Ans	Having	
16.	Which function is used to open a connection with MYSQL database from within Python using mysql.connector package a) open() b) database() c) connect() d) connectdb()	1
Ans	connect()	
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):- The Maximum set of attributes that can uniquely identify a tuple is known as candidate key. Reasoning (R):- Out of one or more candidate keys, the attribute chosen by database designer to uniquely identify the tuple ina relation is called primary key of that relation.	
ANS	OPTION D IS CORRECT	
18.	Assertion (A): CSV stands for Comma Separated Values Reason (R): CSV file are common file format for transferring and storing data.	
ANS	OPTION B IS CORRECT	
	SECTION B	

19.	Mr Rathi has written code in Python to calculate fee according to condition. His code is having errors. Rewrite the correct and underline the correction made.
	def calculate():
	fee=200
	0=i
	while fee=<2000:
	if fee<=750:
	print(fee)
	fee=+250
	else:
	print("fee"*i)
	i=i+1
	fee=Fee+250
		2

Ans	def calculate():
	fee=200
	i=0
	while fee<=2000:
	if fee<=750:
	print(fee)
	fee+=250
	else:
	print("fee"*i)
	i=i+1
	fee=fee+250	

20.	Write two points of difference between Twisted Pair Cables and Coaxial Cables OR	2

	Write two points of difference between SMTP and POP3	
Ans	Twisted Pair Cables- These cables consists of two insulated copper wires twisted around each other. These are used for short and medium range telephone communication. Coaxial Cables- A coaxial cable consists of one or more small cables in a protective covering. These are more expensive than twisted pair cables but perform better. OR Simple Mail Transfer Protocol (SMTP) is the standard protocol for sending emails across the internet. POP3- Post office Protocol version 3(POP3) is a standard mail protocol used to receive emails from a remote server to local email client. POP3 allows you to download email message on your local computer and read them even when you are offline	
21.	a) Given is a Python string declaration: cbseexam="BoardExamination2022-23" Write the output of:print(cbseexam[::3]) b) Write the output of the following code dc1={ } dc1[1]=1 dc['1']=2 dc1[1.0]=4 sum=0 for k in dc1: sum+=dc1[k] print(sum)	2
Ans	a) Bor b) 6	
22.	Explain the use of constraints in Relational Database Management System. Give Example to support your answer	2
23	a) Write the full form of the following (i) NFS (ii) FTP b) What is Modem ? What is its function ?	2
Ans	i) Network File System ii) File Transfer Protocol b) A modem is a computer peripheral that connects a workstation to other work stations via telephone lines and facilitates communications Modem converts digital signals to A/F(Audio Frequency) tones which are in the frequency range that the telephone lines can transmit and also it can convert transmitted tones back to digital information	

24	Predict the output of the following code given below:
	def func(message,num=1):
	print(message*num)
	func('Python')
	func('Easy',3)
	
	OR
	Predict the output of the following code given below:
	tuple1=('Jayesh','Ramya','Taruna','Suraj')
	list1=list(tuple1)
	for Name in list1:
	if Name[0]=='T':
	break
	else:
	print("Finished")
		2

print("Got it!")

Ans

Python
EasyEasyEasy
OR

Finished
Finished
Got it!

25 Differentiate between CHAR and VARCHAR datatypes — 2

OR

Categorized the following command as TCL and DDL
ALTER,COMMIT,DROP,ROLLBACK

Ans

The difference between CHAR and VARCHAR is that of fixed length and variable length. The CHAR datatype specifies a fixed length character string. When a column is given CHAR(n), then MySql ensures that all values stored in that column have this length i.e. n bytes. If a value is shorter than this length n then blanks are added, byt the size of value remains n bytes

OR

TCL-ROLLBACK,COMMIT
DDL-ALTER,DROP

SECTION C

26. a) Consider the table Hotel given below — 1+2

EMPID	CATEGORY	SALARY
E101	MANAGER	60000
E102	EXECUTIVE	65000
E103	CLERK	40000
E104	MANAGER	62000
E105	EXECUTIVE	50000
E106	CLERK	35000

What will be output of the following statement

Select category,avg(salary) from hotel group by category

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

TABLE-ACTIVITY

ACODE	ACTIVITYNAME	PARTICIPANTNUM	PRIZEMONEY	SCHEDULEDATE
1001	Relay Name	16	10000	23-Jan-2004
1002	High Jump	10	12000	12-Dec-2003
1003	Shot Put	12	8000	14-Feb-2004
1005	Long Jump	12	9000	01-Jan-2004
1008	Discuss Throw	10	15000	19-Mar-2004

(i) Select * from activity where prizemoney>=9000;
(ii) Select distinct participantnum from activity;
(iii) Select count(*) from activity;
(iv) Select activityname,prizemoney from activity where scheduledate between 12-dec-2003 to 30-Jan-2004;

Ans.a

CATEGORY	SALARY
MANAGER	61000
EXECUTIVE	57500
CLERK	37500

Ans b

27. Write a method in Python to read lines from a text file DIARY.TXT and display those lines which start with the alphabet 'P' — 3

OR

Consider a Binary file Employee.dat containing details such as empno:ename:salary(separator ':'). Write a Python function to display details of those employees who are earning between 20000 and 40000(both values inclusive)

Ans

```
def display():
    file=open('DIARY.TXT','r')
    line=file.readline()
    while line:
        if line[0]=='P':
            print(line)
        line=file.readline()
    file.close()
```

OR

```
def Readline():
    i=open("Employee.dat","rb+")
    x=i.readline()
    while(x):
        l=x.split(':')
        if ((float(l[2])>=20000) and (float(l[2])<=40000):
            print(x)
        x=i.readline()
```

28. a) Write the outputs of the SQL queries (i) to (iv) based on the relations DEPT and WORKER — 3

TABLE-DEPT

DCODE	DEPARTMENT	CITY
D01	MEDIA	DELHI
D02	MARKETING	DELHI
D03	INFRASTRUCTURE	MUMBAI
D05	FINANCE	KOLKATA
D04	HUMAN RESOURCE	MUMBAI

TABLE-WORKER

WNO	NAME	DOJ	DOB	GENDER	DCODE
1001	GEORGE K	2013-09-02	1991-09-01	MALE	D01
1002	RYMA SEN	2012-12-11	1990-12-15	FEMALE	D03
1003	MOHITESH	2013-02-03	1987-09-04	MALE	D05
1007	ANIL JHA	2014-01-17	1984-10-19	MALE	D04
1004	MANILA SAHAI	2012-12-09	1986-11-14	FEMALE	D01
1005	R SAHAY	2013-11-18	1987-03-31	MALE	D02
1006	JAYA PRIYA	2014-06-09	1985-06-23	FEMALE	D05

i) SELECT COUNT(*),DCODE FROM WORKER GROUP BY DCODE HAVING COUNT(*)>1;

ii) SELECT DISTINCT DEPARTMENT FROM DEPT;

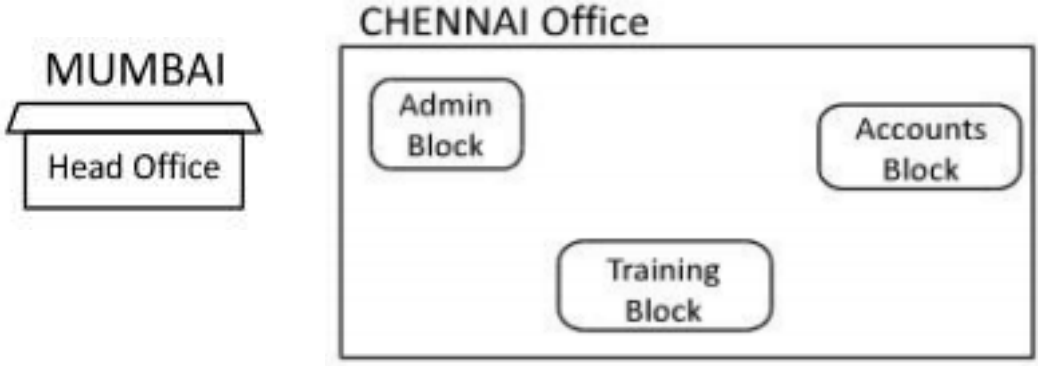
iii) SELECT NAME,DEPARTMENT,CITY FROM WORKER W,DEPT D WHERE W.DCODE=D.DCODE AND WNO<1003;

	iv) SELECT MAX(DOJ),MIN(DOB) FROM WORKER b) write the SQL command to display all database files.	
Ans	i) Count(*) DCODE 2 D01 2 D05 ii) MEDIA MARKETING INFRASTRUCTURE FINANCE HUMAN RESOURCE iii) NAME DEPARTMENT CITY GEROGE K MEDIA DELHI RYAM SEN INFRASTRUCTURE MUMBAI iv) MAX(DOJ) MIN(DOB) 2014-06-09 1984-10-19 c) Show databases;	
29.	Write a function even(L), where L is the list of element passed as argument to the function. The function return another list named changelist that stores even numbers. Sample List:[1,2,3,4,5,6,7,8,9] Expected Result:[2,4,6,8]	3

Ans	def even(l):
	changelist=[]
	for n in l:
	if n %2==0:
	changelist.append(n)
	return changelist
	print(even([1,2,3,4,5,6,7,8,9]))	

30.	Write a function in Python, MakePush(Package) and MakePop(Package) to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. OR Write a function in Python, Push(Client) where , Client is a dictionary containing the details of clients- {Cname:age}. The function should push the names of those client in the stack who have age greater than 50. Also display the count of elements pushed into the stack. For example: If the dictionary contains the following data: Cname={"Robert":55,"Jhon":35,"Smith":75,"Reyan":25} The stack should contain Robert Smith The output should be: The count of elements in the stack is 2	3

Ans	def MakePush(Package):
	a=int(input("Enter Package Title"))
	Package.append(a)
	def MakePop(package):
	if(Package==[]):
	print("Stack empty")
	else:
	print("Deleted element:",Package.pop())
	OR	

	SECTION D	
31.	Hi Standard Tech Training Ltd. is a Mumbai based organization which is expanding its office set-up to Chennai. At Chennai office compound, they are planning to have 3 different blocks for Admin, Training and Accounts related activities. Each block has a number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised by them in (i) to (v), as per the distances between various blocks/locations and other given Parameters  Shortest distances between various blocks/locations: Admin Block to Accounts Block 300 Metres Accounts Block to Training Block 150 Metres Admin Block to Training Block 200 Metres MUMBAI Head Office to CHENNAI Office 1300 Km **Number of Computers**- Training Block=150 Admin Block=50 i) Suggest the most appropriate place for the server in the Chennai Office to get the best effective connectivity. Justify your answer ii) Suggest the best wired medium for connection of computers in the Chennai office iii) Draw the cable layout(block to block) to efficiently connect various	5

	blocks with Chennai office iv) Suggest a device /software and its placement that would provide data security for the entire network of the Chennai office v) Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphones /laptop users in the Chennai office	
Ans.	1 mark for each correct answer	

32	a). Write the output of the code given below:
	a=10
	y=5
	def myfunc():
	global a
	y=a
	a=2
	print("y=",y, "a=",a)
	print("a+y=",a+y)
	return a+y
	print("y=",y,"a=",a)
	print(myfunc())
	print("y=",y, "a=",a)
	
	(b) The code given below inserts the following record in the table Books:
	Title – String
	AuthorName – string
	ISBN_No – String
	Price – integer
	Note the following to establish connectivity between Python and MYSQL:
	• Username is root
	• Password is tiger
	• The table exists in a MYSQL database named Library.
	• The details (Title, AuthorName, ISBN_No and Price) 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 mysql
	def Library_data():
	con1=mysql.connect(host="localhost",user="root",password="tiger",
	database="Library")
	mycursor=_____ #Statement 1
	Title=input("Enter Book Title :: ")
	AuthorName=input("Enter Book Author Name :: ")
	ISBN_No=input("Enter Book ISBN Number:: ")
	Price=int(input("Enter Price of Book :: "))
	querry="insert into Books values({},'{}',{},{})".format(Title,AuthorName ,
		2+3

```
        ISBN_No,Price)
        _____ #Statement 2
        _____ # Statement 3
       print("Data Added successfully")
```

OR

(a) Predict the output of the following code

```
def test(s):
    k=len(s)
    m=" "
    for i in range(0,k):
        if(s[i].isupper()):
            m=m+s[i].lower()
        elif s[i].isalpha():
            m=m+s[i].upper()
        else:
            m=m+'bb'
     print(m)
test('school2@com')
```

b) The code given below reads the following record from the table named Books and displays only those records who have Price greater than 200:

Title – String
AuthorName – string
ISBN_No – String
Price – integer

Note the following to establish connectivity between Python and MYSQL:

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

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 books whose price are greater than 200.

Statement 3- to read the complete result of the query (records whose price are greater than 200) into the object named data, from the table books in the database

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="tiger",
    database="library")
     mycursor=_____ #Statement 1
     print("Books with Price greater than 200 are : ")
      _____ #Statement 2
     data=_____ #Statement 3
     for i in data:
         print(i)
     print()
```

Ans	a)y= 5 a= 10 y= 10 a= 2 a+y= 12 12 y= 5 a= 2 b) Statement 1: con1.cursor() Statement 2: mycursor.execute(querry) Statement 3: con1.commit() OR a) SCHOOLbbbbCOM b) Statement 1: con1.cursor() Statement 2: mycursor.execute("select * from books where Price>=200") Statement 3: mycursor.fetchall()	
33.	What is the advantage of using a csv file for permanent storage? 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 'record.csv'. Each record consists of a list with field elements as empid, name and mobile to store employee id, employee name and employee salary respectively. (ii) (ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv'. OR Give any one point of difference between a binary file and a csv file. 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 'furdata.csv'. Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively. (ii) (ii) search()- To display the records of the furniture whose price is more than 10000.	
Ans	Difference between binary file and csv file: (Any one difference may be given) Binary file: • Extension is .dat • Not human readable	

- Stores data in the form of 0s and 1s

CSV file:

- Extension is .csv
- Human readable
- Stores data like a text file

Program:

```
import csv
def add():
      fout=open("furdata.csv","a",newline='\n')
     wr=csv.writer(fout)
     fid=int(input("Enter Furniture Id :: "))
     fname=input("Enter Furniture name :: ")
     fprice=int(input("Enter price :: "))
    FD=[fid,fname,fprice]
    wr.writerow(FD)
    fout.close()
def search():
     fin=open("furdata.csv","r",newline='\n')
    data=csv.reader(fin)
    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. Given the following tables for a database LIBRARY 1+1+2

TABLE-BOOKS

Book_id	Book_name	Author_name	Publishers	Price	Type	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	Cookery	5
F0001	The Tears	William Hopkins	First Publ	650	Fiction	20
T0001	My First C++	Brain & Brooke	EPB	350	Text	10
T0002	C++Brainwork	A.W.Rossaine	TDH	350	Text	15
F0002	Thunderbolts	Anna Roberts	First Publ	750	Fiction	50

TABLE-ISSUED

Book_id	Quantity_Issued
T0001	4
C0001	5
F0001	2

i) To Show Book name,Author name and Price of books of First Publ Publishers
ii) To display the names and price from books in ascending order of their price,
iii) Write the statement to

a) To insert a new row in the table issued having the following data:'F0003",1
b) To increase the price of all books of EPB Publishers by 50

OR

iii) Write the statement to

a) Delete the record of books having price 350
b) Add a column REMARK in the table with datatype as varchar with 50 characters

Ans-	i) Select Book_Name,Author_Name,Price from Books where Publishers=”First Publ”; ii) Select Book_name,Price from Books order by Price iii) a) insert into issued values(‘F0003’,1); b)update Books set Price=Price+50 where Publishers=”EPB”; OR iii) a) delete from books where Price=350; b) Alter table Books add REMARK varchar(50);	
35.	Aaruni Shah is learning to work with Binary files in Python using a process known as pickling/de-pickling. Her teacher has given her the following incomplete code which is creating a binary file namely Mydata.dat and then opens, reads and displays the content of this created file import_____ # Fill_Line1 sqlist=list() for k in range(10): sqlist.append(k*k) fout=_____ #Fill_Line 2 _____ #Fill_Line 3 fout.close() fin=_____ #Fill_Line 4 _____ #Fill_Line 5 fin.close() (a) Complete Fill_Line1 so that the required library becomes available to the program (b) Complete Fill_Line 2 so the above mentioned binary file is opened for writing in the file object fout (c) Complete Fill_Line 3 so that list created in nthe code , namely Sqlist, is written in the open file. (d) Complete Fill_Line 4 which will open the same binary file for reading in the file object fin. (e) Complete Fill_Line 5 so that the contents of the open file in the file handle fin are read in a list namely mylist.	5

Ans	a) import pickle b) fout=open(“Mydata.dat”,’wb’) c) pickle.dump(sqlist,fout) d) fin=open(‘Mydata.dat’,’rb’) e) mylist=pickle.load(fin)	

;Class: XII Session: 2022-23

Computer Science (083)

(Theory)

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

hoursGeneral 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 isgiven in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	Python loops can also have else caluse(True/False)	1
2.	Which of the following is not a keyword? a) eval b) assert c) nonlocal d) pass	1
3	What will be the output of the following code snippet ? rec={"Name":"Python","Age":"20","Addr":"NJ","Country":"USA"} id1=id(rec) del rec rec={"Name":"Python","Age":"20","Addr":"NJ","Country":"USA"} id2=id(rec) print(id1==id2) a) True b) False c)1 d) Exception	1
4	What is the output of this code? >>>int("3"+"4") a) "7" b)"34" c) 34 d) 24	1
5	Select the correct output of the code x="apple,pear,peach" y=x.split(" , ") for z in y: print(z) a) apple,pear,peach b) pear,apple,peach c) peach,apple,pear d) Error	1
6	To read the next line of the file from a file object infi,we use a) infi.read(all) b)infi.read() c)infi.readline() d) infi.readlines()	1
7	Fill in the Blank: _____is not a legal constraint for a CREATE TABLE command ? a) Primary Key b) Foreign Key c) Unique d) Distinct	1
8	In SQL, Which commamd(s) is(are) used to change a table's structure/characteristic ? a) ATLER TABLE	1

	b) MODIFY TABLE c) CHANGE TABLE d) ALL OF THESE	

9	Which of the following statement(s) would give error after executing the following code?
	s1='must' #statement 1
	s2='try' #statement 2
	n1=10 #statement 3
	n2=3 #statement 4
	print(s2*s1) #statement 5
	print(s1+s2) #statement 6
	print(s1+n1) #statement 7
	a) statement 4
	b) statement 5 and 7
	c) statement 6
	d) No Error
		1

10	Fill in the blanks DML Stand for_____ a) Different Mode Level b) Data Model Language c) Data Mode Lane d) Data Manipulation Language	1
11.	Which of the following command is used to open a file "c:\pat.txt" for writing in binary format only? a) fout=open("c:\pat.txt","w") b) fout=open("c:\\pat.txt","wb") c) fout=open("c:\pat.txt","w+") d) fout=open("c:\\pat.txt","wb+")	1
12.	All aggregate function except_____ignore null values in their output collection a) count(attribute) b) count(*) c) avg() d) sum()	1
13.	_____Network device that regenerates and retransmit the whole signal a) Modem b) Hub c) Repeater d) Bridge	1
14.	What will be the value of the following expression ? 14+13%15 a) 14 b) 27 c) 12 d) 0	1
15.	The sum(), if used in a condition, is used with caluse a) Group By b) With c) Where d) Having	1
16.	Which function is used to open a connection with MYSQL database from within Python using mysql.connector package a) open() b) database() c) connect() d) connectdb()	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):- the most common reason of an errors in python program is when a certain statement is not in accordance with the prescribed usage . such an error is called an syntax errors.. Reasoning (R):- Error caused by not following the proper structure of the language is called syntax error.	1
18.	Assertion (A): CSV stands for Comma Separated Values Reason (R): CSV file are common file format for transferring and storing data.	1
	SECTION B	

19.	Mr Rathi has written code in Python to calculate fee according to condition. His code is having errors. Rewrite the correct and underline the correction made.
	def calculate():
	fee=200
	0=i
	while fee=<2000:
	if fee<=750:
	print(fee)
	fee=+250
	else:
	print("fee"*i)
	i=i+1
	fee=Fee+250
		2

20.	Write two points of difference between Twisted Pair Cables and Coaxial Cables OR Write two points of difference between SMTP and POP3	2
21.	a) Given is a Python string declaration: cbseexam="BoardExamination2022-23" Write the output of:print(cbseexam[::3]) b) Write the output of the following code dc1={ } dc1[1]=1 dc['1']=2 dc1[1.0]=4 sum=0 for k in dc1: sum+=dc1[k] print(sum)	2
22.	Explain the use of constraints in Relational Database Management System. Give Example to support your answer	2
23	a) Write the full form of the following (i) NFS (ii) FTP b) What is Modem ? What is its function ?	2
24	Predict the output of the following code given below: def func(message,num=1): print(message*num) func('Python') func('Easy',3) OR	2

Predict the output of the following code given below:

```
tuple1=('Jayesh','Ramya','Taruna','Suraj')
list1=list(tuple1)
for Name in list1:
    if Name[0]=='T':
        break
    else:
        print("Finished")
print("Got it!")
```

25 Differentiate between CHAR and VARCHAR datatypes — 2

OR

Categorized the following command as TCL and DDL
ALTER,COMMIT,DROP,ROLLBACK

SECTION C

26. a) Consider the table Hotel given below — 1+2

EMPID	CATEGORY	SALARY
E101	MANAGER	60000
E102	EXECUTIVE	65000
E103	CLERK	40000
E104	MANAGER	62000
E105	EXECUTIVE	50000
E106	CLERK	35000

What will be output of the following statement

Select category,avg(salary) from hotel group by category

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

TABLE-ACTIVITY

ACODE	ACTIVITYNAME	PARTICIPANTS NUM	PRIZEMONEY	SCHEDULEDATE
1001	Relay Name	16	10000	23-Jan-2004
1002	High Jump	10	12000	12-Dec-2003
1003	Shot Put	12	8000	14-Feb-2004
1005	Long Jump	12	9000	01-Jan-2004
1008	Discuss Throw	10	15000	19-Mar-2004

(i) Select * from activity where prizemoney>=9000;
(ii) Select distinct participantnum from activity;
(iii) Select count(*) from activity;
(iv) Select activityname,prizemoney from activity where scheduledate between 12-dec-2003 to 30-Jan-2004;

27. Write a method in Python to read lines from a text file DIARY.TXT and display those lines which start with the alphabet 'P' — 3

OR

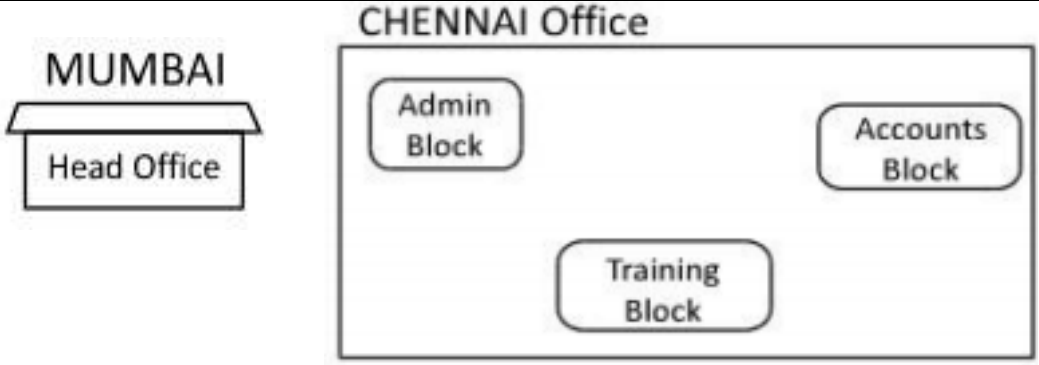
Consider a Binary file Employee.dat containing details such as empno:ename:salary(separator ':'). Write a Python function to display details of those employees who are earning between 20000 and 40000(both values inclusive)

28.	a) Write the outputs of the SQL queries (i) to (iv) based on the relations DEPT and WORKER
	TABLE-DEPT
	
	TABLE-WORKER
	
	i) SELECT COUNT(*),DCODE FROM WORKER GROUP BY DCODE HAVING COUNT(*)>1;
	ii) SELECT DISTINCT DEPARTMENT FROM DEPT;
	iii) SELECT NAME,DEPARTMENT,CITY FROM WORKER W,DEPT D WHERE W.DCODE=D.DCODE AND WNO<1003;
	iv) SELECT MAX(DOJ),MIN(DOB) FROM WORKER
	b) write the SQL command to display all database files.
		3

DCODE	DEPARTMENT	CITY
D01	MEDIA	DELHI
D02	MARKETING	DELHI
D03	INFRASTRUCTURE	MUMBAI
D05	FINANCE	KOLKATA
D04	HUMAN RESOURCE	MUMBAI

WNO	NAME	DOJ	DOB	GENDER	DCODE
1001	GEORGE K	2013-09-02	1991-09-01	MALE	D01
1002	RYMA SEN	2012-12-11	1990-12-15	FEMALE	D03
1003	MOHITESH	2013-02-03	1987-09-04	MALE	D05
1007	ANIL JHA	2014-01-17	1984-10-19	MALE	D04
1004	MANILA SAHAI	2012-12-09	1986-11-14	FEMALE	D01
1005	R SAHAY	2013-11-18	1987-03-31	MALE	D02
1006	JAYA PRIYA	2014-06-09	1985-06-23	FEMALE	D05

29.	Write a function even(L), where L is the list of element passed as argument to the function. The function return another list named changelist that stores even numbers. Sample List:[1,2,3,4,5,6,7,8,9] Expected Result:[2,4,6,8]	3
30.	Write a function in Python, MakePush(Package) and MakePop(Package) to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. OR Write a function in Python, Push(Client) where , Client is a dictionary containing the details of clients- {Cname:age}. The function should push the names of those client in the stack who have age greater than 50. Also display the count of elements pushed into the stack. For example: If the dictionary contains the following data: Cname={"Robert":55,"Jhon":35,"Smith":75,"Reyan":25} The stack should contain Robert Smith The output should be: The count of elements in the stack is 2	3
	SECTION D	
31.	Hi Standard Tech Training Ltd. is a Mumbai based organization which is expanding its office set-up to Chennai. At Chennai office compound, they are planning to have 3 different blocks for Admin, Training and Accounts related activities. Each block has a number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised by them in (i) to (v), as per the distances between various blocks/locations and other given Parameters	5



Shortest distances between various blocks/locations:

Admin Block to Accounts Block 300 Metres

Accounts Block to Training Block 150 Metres

Admin Block to Training Block 200 Metres

MUMBAI Head Office to CHENNAI Office 1300 Km

Number of Computers-

Training Block=150

Admin Block=50

i) Suggest the most appropriate place for the server in the Chennai Office to get the best effective connectivity. Justify your answer

ii) Suggest the best wired medium for connection of computers in the Chennai office

iii) Draw the cable layout(block to block) to efficiently connect various blocks with Chennai office

iv) Suggest a device /software and its placement that would provide data security for the entire network of the Chennai office

v) Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphones /laptop users in the Chennai office

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

```
a=10
y=5
def myfunc():
    global a
    y=a
    a=2
    print("y=",y, "a=",a)
    print("a+y=",a+y)
    return a+y
print("y=",y,"a=",a)
print(myfunc())
```

print(“y=”,y, “a=”,a)

(b) The code given below inserts the following record in the table Books:
Title – String
AuthorName – string
ISBN_No – String
Price – integer
Note the following to establish connectivity between Python and MYSQL:

- Username is root
- Password is tiger
- The table exists in a MYSQL database named Library.
- The details (Title, AuthorName, ISBN_No and Price) 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 mysql
def Library_data():
        con1=mysql.connect(host="localhost",user="root",password="tiger",
        database="Library")
        mycursor=_____ #Statement 1
        Title=input("Enter Book Title :: ")
        AuthorName=input("Enter Book Author Name :: ")
        ISBN_No=input("Enter Book ISBN Number:: ")
        Price=int(input("Enter Price of Book :: "))
       querry="insert into Books values({},'{}',{},{})".format(Title,AuthorName ,
       ISBN_No,Price)
        _____ #Statement 2
        _____ # Statement 3
       print("Data Added successfully")
```

OR

(a) Predict the output of the following code

```
def test(s):
    k=len(s)
    m=” “
    for i in range(0,k):
        if(s[i].isupper()):
            m=m+s[i].lower()
        elif s[i].isalpha():
            m=m+s[i].upper()
        else:
            m=m+’bb’
     print(m)
test(‘school2@com’)
```

b) The code given below reads the following record from the table named Books and displays only those records who have Price greater than 200:

Title – String
AuthorName – string
ISBN_No – String
Price – integer
Note the following to establish connectivity between Python and MYSQL:

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

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 books whose price are greater than 200.
Statement 3- to read the complete result of the query (records whose price are greater than 200) into the object named data, from the table books in the database

```
import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="tiger",
    database="library")
     mycursor=_________________ #Statement 1
     print("Books with Price greater than 200 are : ")
      _____________________________ #Statement 2
     data=____________________ #Statement 3
     for i in data:
         print(i)
     print()
```

33. What is the advantage of using a csv file for permanent storage? 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 'record.csv'. Each record consists of a list with field elements as empid, name and mobile to store employee id, employee name and employee salary respectively.

(ii) (ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv'.

OR

Give any one point of difference between a binary file and a csv file. 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 'furdata.csv'. Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively.

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

SECTION E

34. Given the following tables for a database LIBRARY — 1+1+2

TABLE-BOOKS

Book_id	Book_name	Author_name	Publishers	Price	Type	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	Cookery	5
F0001	The Tears	William Hopkins	First Publ	650	Fiction	20
T0001	My First C++	Brain & Brooke	EPB	350	Text	10
T0002	C++Brainwork	A.W.Rossaine	TDH	350	Text	15
F0002	Thunderbolts	Anna Roberts	First Publ	750	Fiction	50

TABLE-ISSUED

Book_id	Quantity_Issued
T0001	4
C0001	5
F0001	2

i) To Show Book name,Author name and Price of books of First Publ Publishers
ii) To display the names and price from books in ascending order of their price,
iii) Write the statement to

a) To insert a new row in the table issued having the following data:'F0003",1
b) To increase the price of all books of EPB Publishers by 50

OR

iii) Write the statement to

a) Delete the record of books having price 350
b) Add a column REMARK in the table with datatype as varchar with 50 characters

35. Aaruni Shah is learning to work with Binary files in Python using a process known as pickling/de-pickling. Her teacher has given her the following incomplete code which is creating a binary file namely Mydata.dat and then opens, reads and displays the content of this created file — 5

```
import_____                    # Fill_Line1

sqlist=list()

for k in range(10):
```

```
    sqlist.append(k*k)

fout=_____________________          #Fill_Line 2

_____________________________       #Fill_Line 3

fout.close()

fin=_____________________________   #Fill_Line 4

_____________________________       #Fill_Line 5

fin.close()
```

(a) Complete Fill_Line1 so that the required library becomes available to the program
(b) Complete Fill_Line 2 so the above mentioned binary file is opened for writing in the file object fout
(c) Complete Fill_Line 3 so that list created in nthe code , namely Sqlist, is written in the open file.
(d) Complete Fill_Line 4 which will open the same binary file for reading in the file object fin.
(e) Complete Fill_Line 5 so that the contents of the open file in the file handle fin are read in a list namely mylist.

KENDRIYA VIDYALAYA SANGATHAN - MUMBAI REGION

Sample Question Paper (2022-2023)

Class: XII Time: 3 Hours

Subject: Computer Science (083) Max. Marks: 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 1 mark each.
4. Section B has 7 very short answer type questions carrying 2 marks each.
5. Section C has 5 short answer type questions carrying 3 marks each.
6. Section D has 3 long answer type questions carrying 5 marks each.
7. Section E has 2 long answer type questions carrying 4 marks each.
8. Internal choices are given in few questions.
9. All programming questions are to be answered using PYTHON language only.

SECTION - A

1 Identify the name(s) from the following that cannot be used as identifiers in Python: 1

Name, for, a_123, True

Answer :

for, True

½ mark for each correct answer

2 Name the datatype for the following: 1

a. L=25,

b. T={25:"money", "money":25}

Answer :

a. Tuple

b. Dictionary

½ mark for each correct answer

3 Which is the correct way to remove an item from dictionary i.e. Tuesday 1

WEEKD={'mon':Monday', 'tue':'Tuesday', 'wed','Wednesday'}

a. Del WEEKD('Tuesday')

b. Del WEEKD['Tue']

c. del WEEKD['tue']

d. both b and c

Answer:

c. del WEEKD['tue']

1 mark for correct answer

4 Which of following expression(s) is an example of type casting 1

(a) 4.0 +float(6) (b)5.3 +6.3 (c) 5.0 +3 (d) int(3.1) +7

Answer:

(a) 4.0 + float(6) , (d) int(3.1)+7 both are example of type casting

½ mark for each correct answer

5 What will be the output of the following: 1

```
S= "python is very funny language"
print(S.split("n"))
```

Answer:

['pytho', 'is very fu', 'y la', ' ', 'guage']

½ mark for partial correct , 1 mark for fully correct

6 Which function is used to read a single line from a file ? 1

(a) Readline( ) (b) readline( ) (c) Readlines( ) (d) readfullline( )

Answer:

(b) readline( )

1 mark for correct answer

7 Fill in the blank: 1

_____Command used to remove/drop a column(attribute) from the table(relation).

a. Update b. Drop c. Alter d.Remove

Answer:

c. Alter

1 mark for correct Answer

8 Rohan created a table Company and inserted two records now he wants to change the value in **city** column and wants to put value of **city** column is 'DELHI' for both the records, write command to update the record in a table. 1

Answer:

UPDATE COMPANY SET CITY='DELHI';

1 mark for correct answer

9 What will be the output of the following code: 1

```
Color = 'Color helps to give shadow to the picture'
newcolor = Color.replace('o','#')
print(newcolor)
```

Answer:

C#l#r helps t# give shad#w t# the picture

½ mark for partial change of 'o' , 1 mark for complete correct output

10 Fill in the blank: 1

`_____ command is used to delete all the record, structure of a table must exist in database after deleting all the record of a table

(a) DROP (b) DELETE (c) ALTER (d) None of these

Answer: DELETE

1 mark for correct answer

11 Which of the following mode is used for both writing and reading in binary in file 1

a. wr+ b. wb+ c. w+ d. wr

Answer:

b. wb+

1 mark for correct answer

12 In database School there are two table Student (containing 5 records) and Fee (containing 3 records). Sohan displayed data from both the tables using select command, then total 15 rows (records) displayed , which type of joining is implemented when, Sohan displayed records 1

a. Equi Join b. Cross Join c. Natural Join d. none of these

Answer :

b. Cross Join

1 mark for correct answer

13 _____ protocol is used to transmit the data between devices and containing address of node also 1

a. SMTP b. PPP c. UDP d. TCP/IP

Answer:

d. TCP/IP (1 mark for correct answer)

14 What will be the output of the following expression and statement: 1

M=30>5 and 15==15

Print(M)

a. 30 b. true c. True d. False

Answer:

c. True (1 mark for correct answer)

15 Aman store 5 five in table 'student' and for attribute fee Rs. 1500,2500,3000,1000,NULL stored respectively. Aman executed the below command in SQL : 1

Select average(fee) from student;

After executing the above command for NULL fee record Rs. 4500 updated in the table student .

on the basis of above select command what will be the average of fee will come as output:

a. 1600 b. 2000 c. 2500 d. None of the above

Answer:

b. 2000

1 mark for correct answer

16 To establish a connection between python and mysql which package is required to import in python programming : 1

a. Python.mysql.connector b. Mysql.Connector

c. mySql.connector d. mysql.connector

Answer : d. mysql.connector

1 mark for correct answer

Questions 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 of A.

b. Both A and R are true and R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

17 Assertion (A): If you don't provide value to argument of function during function call then the function take its default value defined in the function. Reason (R): during functions call argument are required 1

Answer

a. Both A and R are true and R is the correct explanation of A.

1 mark for correct answer

18 Assertion (A): In CSV , reader module take file object as argument Reason (R): Default value of newline is '\n' in open( ) statement used with csv file. 1

Answer

a. Both A and R are true and R is the correct explanation of A.

1 mark for correct answer

SECTION - B

19 Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code: 2

```
Value=30
Def Display(Value):                                    #
Function Define
        for VAL in range(0,Value)
                if(val%4==0):
                        print(VAL*4)
                elif(VAL%5==0):
                        Print(VAL+3)
                Else:
                         print(VAL+10)
Display(30)                                            #
Function call
```

Answer:

```
Value=30
def Display(Value):                                    #
Function Define
        for VAL in range(0,Value):
                if(VAL%4==0):
                        print(VAL*4)
                elif(VAL%5==0):
                        print(VAL+3)
                else:
                         print(VAL+10)
Display(30)                                            #
Function call
```

½ mark for each correction , 2 marks all correction and proper syntax

20 Differentiate between Viruses and Worms in context of Networking and Data Communication threats. 2

Answer:

Viruses require an active host program or an already infected and active operating system in order for viruses to run, cause damage and infect other executable files or documents. **Worms are** standalone malicious programs that can **self-replicate.**

2 marks for difference

OR

Write is difference between web browser and web server. Write name any two web browsers.

Answer:

Web browser: A web browser is a software application for accessing information from the World Wide Web. When a user requests a web page from a particular website, the browser retrieves the necessary content from a web server and then displays the page on the user's device

Web Server: A web server is used to run all websites. The main objective of web server is to store, process and deliver web pages to the user.

The intercommunication is done using Hypertext Transfer Protocol

Popular web browsers : Google Chrome, Microsoft Edge, Mozilla Firefox

1 mark for difference and 1 mark for writing correct web browsers name

21 Find and write the output of the following python code: 2

```
def Display(str):
    m=" "
    for i in range(0,len(str)):
        if (str[i].isupper()):
            m=m+str[i].lower()
        elif (str[i].islower()):
            m=m+str[i].upper()
        else:
            m=m+str[i-1]
    print(m)
Display('Fun@Python3.7.0')
```

Answer:

fUNnpYTHONn3.7.

2 marks for correct output

22 Define Candidate key with suitable example. 2

Answer:

A table may have more than one such attribute/ group of attributes that identifies a tuple uniquely, all such attribute(s) are known as Candidates key

Example : TABLE : ITEMS

INO	ITEM	PRICE
P101	PEN	250
P102	PENCIL	302
C103	CD	205
E104	ERASER	250
D105	DUSTER	105

In the above table ITEMS, (INO,ITEM uniquely identified all tuples can be a candidate key

1 mark for defining and 1 marks for correct example

23 a. Write the full form of FTP and HTTP? 1

Answer:

FTP :- FILE TRANSFER PROTOCOL

HTTP:- HYPER TEXT TRANSFER PROTOCOL

½ mark each for correct expand

b. Expand CDMA and WLL 1

Answer:

CDMA : CODE DIVISION MULTIPLE ACCESS

WLL : WIRELESS LOCAL LOOP

½ mark each for correct expand

24 Predict the output of the python code given below: 2

```
def Difference(N1,N2):
        if (N1>N2):
                return (N1+N2)
        else:
                return (N2+N1)
Value=['a','B','c','D','e','F']
for ch in range(5,0,-1):
        A=Value[ch]
        B=Value[ch-1]
        print(Difference(A,B))
```

Answer :

eF

eD

cD

cB

aB

1 mark for partial output and 2 marks for complete output

OR

Predict the output of the python code given below:

```
T=25,26,27,28,29
L=list(T)

NL=[ ]
for I in L:
        if(i%2==0):
                NL.append(i)
        else:
                NL.append(i-1)
NP=tuple(NL)
print(NP)
```

Answer :

(25,26,26,28,28)

2 marks for correct output

25 Mohan facing problem to apply SQL functions help him as per below circumstances and **suggest correct function <u>with column name if any as per given statement</u>:-**

a. Want to count total number of record of a table(relation) ½

b. Want to find the average of fees received in the vidyalaya ½

c. Want to count for a column city how many city entered in the column(attribute) except null values ½

d. Want to find the maximum fee paid by a student in the Vidyalaya ½

Answer:

a. Count(*) b. avg(fee) c. Count(city) d. Max(fee)

½ mark for each correct answer

OR

Categorize the following commands as DDL or DML:

CREATE, DELETE, ALTER, UPDATE 2

Answer:

DDL : CREATE , ALTER

DML: DELETE, UPDATE

½ mark each for categorizing the command, total 2 marks

SECTION - C

26 Consider the following tables and answer the questions a and b:

Table: School

SID	SName	Fee	Class	CCode
S101	JATIN	2000	11	C1101

S102	PARTH	1500	11	C1102
S103	SNEHA	1800	12	C1202
S104	PRADEEP	2750	11	C1101
S105	ABHINAV	2400	12	C1201

Table: TEACHER

CCode	TName
C1101	PRAMOD
C1102	SMARAT

a. What will be output of the following command: 1

SELECT * FROM SCHOOL NATURAL JOIN TEACHER;

b. What will be the output of following commands:

i. SELECT DISTINCT CLASS FROM SCHOOL; ½

ii. SELECT CCODE, SUM(FEE) FROM SCHOOL GROUP BY CCODE HAVING COUNT(*)>1; ½

iii. SELECT SNAME, TNAME, FROM SCHOOL S, TEACHER T WHERE S.CCODE = T.CCODE AND FEE>2000; ½

iv. SELECT AVG(FEE) AS AVGFEE FROM SCHOOL WHERE FEE BETWEEN 1500 AND 1800; ½

Answer:

a. SELECT * FROM SCHOOL NATURAL JOIN TEACHER;

SID	SName	Fee	Class	CCode	TNAME
S101	JATIN	2000	11	C1101	PRAMOD
S102	PARTH	1500	11	C1102	SMARAT
S104	PRADEEP	2750	11	C1101	PRAMOD

b(i).

SID
S101
S102

b(ii)

CCODE	FEE
C1101	4750
C1102	1500
C1202	1800
C1201	2400

b(iii)

SNAME	TNAME
PRADEEP	PRAMOD

b(iv)

AVGFEE
1650

3 marks for correct output of sub parts of a (1 mark) , b(I to iv) (½ mark each)

27 Write a function **displayMyMe()** in python that counts the number of "Me" or "My" words present in the text file "STORY.TXT". 3

If the "STORY.TXT" contents are as follows:

My first book
was **Me** and **My** Family. It
gave **Me** chance to known to the world.

The output of the function should be

Count of My/Me in file : 4

Answer:

```
def displayMyMe():
    num=0
    f=open("STORY.txt,'r')
    N=f.read()
    M=N.split()
    for X in M:
        if (X=="Me" or "My"):
            num=num+1
     f.close()
     print("Count of My/Me in file : ", num)
```

½ mark for defining correct function with colon(:)
½ mark for opening file correctly, ½ mark for read()
½ mark for split() , ½ marks for if condition ,
½ mark for print statement

OR

Write a function vowelcount( ) in Python , which should read each character of a text file POEM.txt, should count and display the occurrence of vowels (including both cases)

Example

If the file content is as follows :
You are good student of class

Total Vowels : 10

Answer:

```
def vowelcount():
     f=open("POEM.txt,'r')      # r mode if not mention then it default take read mode
    vowel=['a','e','i','o','u','A','E','I','O','U']
    count=0
    data=f.read()
    for i in data:
        if i  in vowel:
            count=count+1
   print(" Total Vowels : ",count)
  f.close()
```

½ mark for defining correct function with colon(:)
1 mark for opening file correctly, ½ mark for read() if data read correctly
½ marks for if condition to check vowel, ½ mark for print statement

28 Consider the relations(tables) Games and Player and write the output of the query for a (i) to (iv) (½ mark each= 2 marks) ,(b) write the command as per statement

Table: **GAMES**

GCode	GName	Number	Gametype	Prize	Sdate
G101	Carom	2	Indoor	15000	2022-07-02
G102	Badminton	2	Outdoor	12000	2021-09-15
G103	Table Tennis	4	Indoor	8000	2022-07-25
G104	Chess	2	Indoor	7000	2020-10-01
G105	Lawn Tennis	4	Outdoor	20000	2022-11-01

Table: **PLAYER**

PCODE	PNAME	GCode
P1	PRAMOD	G101
P2	SMARAT	G102
P3	DIPAK	G103
P4	NILESH	G105

½
½

(a) Write the output of all statements (Queries)

(i) SELECT Gametype, avg(Prize) from GAMES group by Gametype;

(ii) SELECT max(Sdate), min (Sdate) from GAMES;

(iii) SELECT Gname, Gametype, G.GCode, , Pname FROM Games G, Player P WHERE G.GCode=P.GCode and Prize>10000; ½

(iv) SELECT Gname, Pname from Games G, Player P where Number>=4 and G.GCode=P.GCode; ½

(b) **Write a Query** to insert a record in to table GAMES : 1

GCode	GName	Number	Gametype	Prize	Sdate
G106	Chess	2	Indoor	12000	2022-10-11

Answer : a (i to iv) ½ mark for output , b: 1 mark for correct query

a(i)

Gametype	Avg(Prize)
Indoor	10000
Outdoor	16000

(ii)

Max(Sdate)	Min(Sdate)
2022-11-01	2020-10-01

(iii)

Gname	Gametype	GCode	Pname

Carom	Indoor	G101	PRAMOD
Badminton	Outdoor	G102	SMARAT
Lawn Tennis	Outdoor	G105	NILESH

(iv)

Gname	Pname
Table Tennis	DIPAK
Lawn Tennis	NILESH

b.

INSERT into Games values('G106','Chess', 2, 'Indoor', 12000, '2022-10-11');

29 Write a function **LShift(Arr,n)** in Python, which accepts a list **Arr** of numbers and **n** is a numeric value by which all elements of the list are shifted to left. 3

Sample Input date of the list

Arr=[10,20,30,40,12,11] , n=2

Output

Arr=[30,40,12,11,10,20]

Answer :

```
def LShift(Arr,n):
    L=len(Arr)
    for x in range(0,n):
        y=Arr[0]
        for i in range(0,L-1):
            Arr[i]=Arr[i+1]
            Arr[L-1]=y
      print(Arr)
```

½ mark for defining function correctly ,½ marks for len()
1 mark for implementing range() ,
1 mark for proper executing with proper indentation of print statement

30 Write a function in Python Push(student) , where student is a list containing student's name . In Push(student) function , it will insert student record having student name in the stack. 3

ANSWER:

```
student=[]
def Push(student):
    stud_name=input(" enter the name of student")
   S=[stud_name]
   Student.append(S)
   print("student record added into the stack")
```

or any correct program
½ mark of declaration of list , ½ mark for defining correct function,
1 mark for inputting name , 1 mark for append record in stack list

OR

Write a function in Python Pop(student) , where student is a stack implemented by a list of student name . The function returns the value deleted from the stack.
student list containing student record

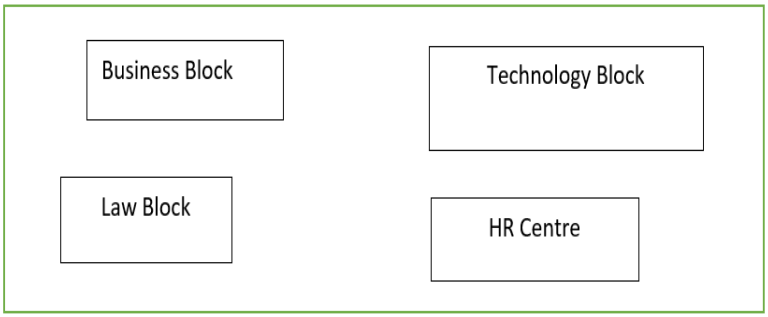
ANSWER:

```
def Pop(student):
    if (student==[]):
        print("stack is empty")
    else:
        n=student.pop()
        print(n, "student record deleted from the stack")
```

or any correct program
1 mark for defining a function correctly, 1 mark for checking empty stack, 1 mark for pop of student from the stack

SECTION D

31 Three student of KV started a business company **Alumni University and** setting up its academic block in Mumbai and is planning to set up of a network. The University has 3 academic block (BUSINESS, TECHNOLOGY, LAW) and one Human Resources Centre as shown in the diagram below:



Centre and blocks distances is as follows:

LAW Block to Business Block	40 m
LAW Block to Technology Block	80 m
LAW Block to HR Centre	105 m
Business Block to Technology Block	30 m
Business Block to HR Centre	35 m
Technology Block to HR Centre	15 m

Numbers of computer in each of the blocks/ Centre is as follows:

LAW Block	18
Technology Block	45
HR Center	105
Business Block	30

(i) Suggest the most suitable palce (i.e. Block/ Center) to install the server of this University with a suitable reason. 1

(ii) Suggest an proper layout for connecting these blocks /center for wired connectivity 1

(iii) Which device will your suggest to be placed / installed in each of these blocks/center to efficiently connect all the computers with in these blocks/center. 1

(iv) Suggest the place to fix repeater in the network with justification 1

(v) The university is planning to connect its admission office in all states, which is more than approx. 1000 km from University , which type of network out of LAN, MAN, WAN will be established ? Justify your answer. 1

ANSWER:

(i) Server will be installed in HR Center because of having maximum number of computer in the area

(ii) Make a layout That connect all blocks with HR center (or any proper best layout)

(iii) Switch will be installed in all blocks/center to connect all the computers in a network

(iv) Repeater may be placed when the distance between two blocks is more than 70-80 meter

(v) WAN, because the given distance is more than the range of LAN and WAN

32 a. Write the output of the Code given below: 2

```
m = 5
def product(p=2, q=5):
    global m
    m = p*q+q*p
    print(m,end='#')

a = 20
b = 5
product(a,b)
product(q=3, p = 2)
```

Answer

200#12#

1 mark for each correct output

b. The code given below used to insert the record in table Games of database STATEGAME: 3

GCode – integer
GName – string
Number – integer
Prize – integer

Write missing Statements (Statement 1, Statement 2 and Statement 3) to complete the code for executing the program in python using myconnector:

```
import mysql.connector as connection
cn = connection.connect(host='localhost', user='root', password='root', database='STATEGAME')
cur = _____ #Statement 1 for making a cursor
while True:
    GCode = int(input("Enter Game Code : "))
    GName = input("Enter Game Name : ")
    Number = int(input("Enter Number of Player in Game : "))
    Prize = int(input("Enter Prize money : "))
    Row = "insert into Games Values ({}, '{}', {}, {}", format(GCode, GName,
                    Number, Prize)
    cur._____(Row) #Staatement 2 to insert record using cursor
    _____ #Statement 3 to save record permanently
    newrow = input("Do you have more records (Y/N)=")
    if (newrow=='n' or newrow=='N'):
        break
print("Records Successfully Saved")
connection.close()
```

Answer

Statement 1: cur = connection.cursor()
Statement 2: cur.execute(row)
Statement 3: connection.commit()
1 mark each for each correct answer

33 What is the use of CSV file in Python Programming? how its helps to store data in it.? Write a program in Python that defines and call the following user define functions:- 5

add() – To accept and add data of an student in to a CSV file "school.csv". Each record consists of a list with field elements as **sid, sname and class** to add student id, student name and class respectively.

Count() – To count the number of records present in the CSV file named 'school.csv'

ANSWER

CSV file in python programming helps to store data like a text file in a format COMMA SEPERATED VALUE. The extension of CSV file is .csv , it's a Human Redable format. This file can be open in Excel and Notepad also

```
import csv
def add():
        fout=open("school.csv",'a', "newline='\n')
        wrow=csv.writer(fout)
        sid=int(input( "enter the student id"))
        sname=input("enter the student name")
        class=int(input("enter class in number in which student studying"))
        row=[sid,sname,class]
        wrow.writerow(row)
        fout.close()
def Count():
        fin=open(("school.csv",'a', "newline='\n')
        data=csv.reader(fin)
        record=list(data)
        print(len(record))
        fin.close()

add()
Count()
```

1 mark for explaining the use of CSV file, ½ mark for importing csv module
1½ mark for making add() correct storing the data and 1 ½ counting the total number of records from a CSV file
½ mark function calling

SECTION E

34 Rohan just started to work for a sports academy having several branches across India. The sports academy appoints various trainers to train various sports. She has been given the task to maintain the data of the trainers. She has made a table called TRAINERS in the database which has following records:

Table: TRAINER

TNo	TName	City	HireDate	Salary
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000

105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Based on the data given above answer the following questions:

a. Which column will be the primary key in this table justify your answer?

b. What is the degree and cardinality of the table TRAINER? If we add three rows and after that remove two rows from table TRAINER. Also if we add two another attribute in the table, what will be the degree and cardinality of the table TRAINER will become? 1 1

c. Write statements for:

i. Insert a new record in table TRAINER with values, TN = 107, TName = 'Pramod', City=' DELHI' HireDate = '1999-01-22', Salary = 90000. 1

ii. Increase the salary of those Trainer having city as DELHI by 5000.

OR (option for part C only) 1

c. Write Statements for:

i. Removes those records from table TRAINER who were hired after year 2000. 1

ii. Add a new column **Game** with datatype as Varchar and maximum size as 20. 1

Answer:

a. Tno column in the table (relation) can be declare as Primary key because of having unique value.

1 mark for correct justification or any correct justification

b. Before Changes: Degree = 5, Cardinality = 6

After Changes: Degree = 7, Cardinality = 7
½ mark for correct Degree and Cardinality before changes
½ mark for correct Degree and Cardinality after changes

c.

i. INSERT INTO Trainer (TNo, TName, City, HireDate, Salary) VALUES (107, 'Pramod','Delhi', '1999-01-22', 90000);

ii. UPDATE Trainer SET Salary = Salary + 5000 WHERE City = 'DELHI';

OR (option for part (c) only

i. DELETE FROM Trainer WHERE Year(HireDate)>2000;

ii. ALTER TABLE Trainer ADD (Game Varchar(20));

1 mark each for each correct query

½ mark each for partially correct query

35 SMARAT is working under KVS, which deals with student record and want to store data in to file with the information of STUDENT id and student name in a binary student.dat. student will go aboard , if id of the student will match . For that he has written the following code. Go through the code given and solve problems given below:

```
def write(id,name):
```

```
F = open(_____)                    #Statement 1
L= _____                           # Statement 2
L.append([id,name])
F.close()
F=open('inventory.dat','wb')
pickle.dump(L,F)
F.close()

def Receive(id,name):
    F=open("inventory.dat","rb")
    L=pickle.load(F)
    F.close()
    for i in range(len(L)):
        if L[i][0] == id:
            L[i][1] += qty
    F=open("student.dat",'wb')
    pickle.dump(L,F)
    _____                          #Statement 3

def Sent(id,name):
    with open("student.dat","rb") as F:
        L=pickle.load(F)
        for i in range(len(L)):
            if L[i][0] == id:
                L[i][1] -= name
    with open("student.dat",'wb') as F:
        pickle.dump(L,F)
```

a. Write python code to open the file at **Statement 1** to read records from the file. 1

b. Write python code at **Statement 2** to read the content of binary file in list L. 1

c. Write python code at **Statement 3** to close the file. 1

d. Why binary file is more accurate to store the data for future use? 1

Answer:

a. F=open('student.dat','rb)

b. L=pickle.load(F)

c. F.close()

d. Binary file in python store the data in machine understandable format, user can not read the data from a file. It is a portable file to transfer the data from one computer to another like a

python program is also portable. In this file security of data is easily maintainable because it is not understandable for individual user.

1 mark each for each correct answer

Kendriya Vidyalaya Sangathan

Mumbai Region

Class XII (Session 2022-23) Subject :- Computer Science (083)

Sample Question Paper (Theory)

Marking Scheme

Time :- 3:00 hr **M.M. :- 70**

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(d) only.
8. All programming questions are to be answered using Python Language only.

Section :- (A)

Ans 1:-	False	1
Ans 2:-	(c)	1
Ans 3:-	(a)	1
Ans 4:-	(a)	1
Ans 5:-	(b)	1
Ans 6 :-	Immutable	1
Ans 7:-	(b)	1
Ans 8:-	(d)	1
Ans 9 :-	False True	½ +½
Ans10 :-	(d)	1
Ans 11:-	(a)	1
Ans 12:-	(c)	1
Ans13 :-	(c)	1
Ans 14:-	(a)	1
Ans 15:-	(c)	1
Ans 16 :-	(c)	1
Ans 17:	(a)	1
Ans 18:-	(d)	1

SECTION (B)

Ans 19:-

```
def  sum(c) :
s=0
for i in range (1, c+1):
    s=s+i
    return s

print(sum(5))
```

2 (½ +½+½ +½)

(½ mark for every correct error)

Ans 20:-

Advantage :- It is very fast and reliable 1

Disadvantage :- It is an expensive communication medium 1

(1 mark for advantage and 1 mark for disadvantage)

OR

A hub shares and distributes bandwidth among all connected computers whereas a switch does not share bandwidth , rather each computer gets full bandwidth.

A hub is a broadcast device while a switch is a unicast device .

(1 mark for each correct difference)

Ans 21: (a) Mg 1

(1 marks for correct answer)

(b) 2 ½ +½

{'x': 1, 'z': 3}

(½ mark for every correct full form)

Ans 22:- Primary key cannot have NULL value , the unique constraints can have NULL values . There is only one primary key in a table , but there can be multiple unique constraints . The primary key creates the cluster index automatically but the Unique key does not.

(1 mark in each difference)

Ans 23 :- (a) (i) Simple Mail Transfer Protocol (ii) Post Office Protocol 1

(½ mark for every correct full form)

(b) Microwave signals are used to transmit data without the use of cables . The microwave signals are similar to radio and television signals and are used for long distance communication. 1

(1 mark for correct answer)

Ans 24 :- Upper case count : 7 1

Lower case count :11 1

(1 mark for each correct digit)

Ans 25 :- A relational operation "=" is not used with the NULL clause. 1

The corrected form is

```
SELECT  * FROM Employee
WHERE  grade is NULL;
```

1

(1 mark for find wrong statement and 1 mark for correct code)

SECTION (C)

Ans 26 :- (a) (i) 1 (ii) 1 (iii) 80000 (iv) 23800 2

(½ mark for each)

(b) An Equijoin is a special type of join where two tables are joined on the basis of common column having equal values i.e it is based upon we use only an equality operator . The EQUI join shows the common columns from all the participating tables . 1

(1 mark for correct answer)

Ans 27 :-

```
def Lshift (Arr, n):
    L= Len(Arr)
    for x in range (0,n):
        y= Arr[0]
        for i in range( 0,L-1):
            Arr [i] =Arr [i+1]
        Arr [L-1]=y
    print( Arr)
```

3

(½ mark for correct function header , 1 mark for correct outer loop ,1 mark for correct inner loop statement , ½ mark for print statement)

Note: Any other relevant and correct code may be marked

Ans 28:-

```
def count_A_M( )
    f= open ("story.txt", "r")
    A,M =0,0
    r=f.read ( )
    for x in r :
        if x[0] == "A"  or x[0] == 'a' :
            A=A+1
        elif x[0]== 'M' or x[0] == 'm':
            M=M+1
    f.close ( )
    print ("A or a : ", A)
    print ("M or m : ", M)
```

3

OR

```
def  displayMeMy ( ) :
    num= 0
    f=open ("story.txt" , "rt")
    N= f.read ( )
    M=N.split ( )
    for x in M:
        if x== "Me" or x== "My":
            print (x)
            num =num+1
    f.close( )
    print ("Count of Me/My in file ", num)
```

- ½ mark for correctly opening and closing the file
- ½ for read()
- ½ mark for correct loop
- ½ for correct if statement
- ½ mark for correctly incrementing count
- ½ mark for displaying the correct output)

Note: Any other relevant and correct code may be marked

Ans 29:-

(i) SELECT * FROM CLIENT
WHERE City = "Delhi ";. — 1

(ii) SELECT * FROM PRODUCT
WHERE Price BETWEEN 50 and 100; — 1

(iii) SELECT ClientName , City , ProductName, Price
FROM CLIENT, PRODUCT
WHERE CLIENT.P_ID = PRODUCT.P_ID — 1

(1 mark for each correct query)

Ans 30:-

```
def   MakePush( Package):
    a= int (input ("Enter package title: "))
    Package.append (a)

def MakePop (Package):
    if (Package== [ ])
        print ("Stack empty")
    else :
        print ("Deleted element : ", Package.pop( ))
```

3

OR

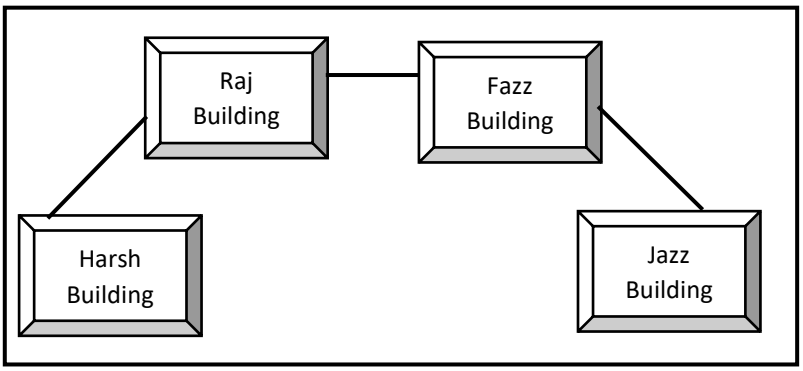
```
Book [ ]
def Addnew (s):
    Name = input ("Enter Book Name ")
    Book.append (Name)

def Remove (self) :
   if (Book == [ ] )
        print ("Stack Empty , Underflow !! ")
   else :
        print ("Deleted Book is : ", Book,pop ( ))
```

(1½ marks for correct push() and 1½ marks for correct pop())

SECTION (D)

Ans 31 :- (i)



4=

1

(1 mark for the correct layout)

(ii) The most suitable place /block to house the server of this organization would be Raj Building , as this block contains the maximum number of computer , thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network. ½ +½

(½ mark for naming the server block and ½ mark for correct reason.)

(iii) (a) Raj Building since it contains largest number of computers.
(b) In the suggested layout , a hub/ switch each would be needed in all the building to interconnect the group of cables from the different computers in each block ½ +½

(½ mark each (a) and (b) for correct justification)

(iv) The type of network that shall be formed to link the sale counters situated in various parts of the same city would be a MAN, because MAN (Metropolitan Area Networks) are the networks that link computer facilities within a city. 1

(**1 mark for the correct answer)**

(b) PayTm, PhonePe, GooglePay etc ½ +½

(**(½ mark for each correct answer)**

Ans 32:- (a) (ii) 1 +½
Maximum value of Lower : 3 +½
Maximum value of upper : 4

(1 mark for correct option ans ½ marks for each correct lower and upper value answer)

(b) Fetchall ( ) fetches all the rows of a query result (the resultset). An empty list is returned if ther is no record matching as per the given SQL query.

3

Fetchone ( ) method retursn one row or a single reocrd at a time from the resultset. It will return None if no more rows /records are available .

For example , if the SQL query returned two records in the resultset such as :

101 Rushil 97.5
106 Anya 98.0

then fetchall ( ) will get all the recorsd (i.e both records shown) in one go. And fetchone ( ) will first get the fist record and after using fetchone( ) again , it will get the second record.

(1 mark for each correct answer and ½ mark for each example)

OR

(a) Global names : invaders, pos , level ,res
Local names : max_level

1
1

(1 mark for each correct answer)

(b)
(i) A database cusror is a special control structure that facilities the row by row processing of the records of the resultset .

The resultset refers to a logical set of records that are fetched from the database by executing an SQL query and made avaliable to the application program.

(1 mark for each correct definition)

1+1

(ii) mysql.connector , pymysql
(1/2 mark for each correct answer)

½ +½

Ans 33:- (a) Line 1: csv 1
(b) Line 2: a 1
(c) Line 3 : reader 1
(d) Line 4 : close ( ) 1
(e) Line 5 : Arjun123@456 1
Arunima aru@nima
Frieda myname@FRD

(1 mark each correct answer)

SECTION (E)

Ans 34:- (a) ItemNo (1 mark for correct answer) 1
(b) Degree = 4 ; Cardinality = 7 (1/2 mark for each correct answer) ½ +½
(c) INSERT INTO STORE (ItemNo, ItemName , Scode) VALUES (2010, “Note Book ”, 25); 1
(1 mark for correct answer)

(d) DROP TABLE store ; (1 mark for correct answer) 1

OR

(d) Des or Describe Store (1 mark for correct answer)

Ans :- 35
```
import pickle
sturno = int (input (“Enter roll number:=” ))
stuname= input (“Enter name :”)
stumarks= float (input (“Enter marks : ”))
Stu1= {“RollNo. ” : sturno , “Name ” : stuname, “Marks ” : stumarks }
```

(a) with **open ("Stu.dat", "wb")** as fh : 1

(b) **pickle. Dump (Stu1, fh)** 1

(c) **with open ("Stu.dat " , "rb")** as fin : 1

(d) **Rstu = pickle.load (fin)** 1

```
print (Rstu )
  if Rstu ["Marks"] >=85:
     print ("Eligible for merit certificate ")
  else :
     print ("Not eligible for merit certificate ")
```

****

Kendriya Vidyalaya Sangathan

Mumbai Region

Class XII (Session 2022-23) Subject :- Computer Science (083)

Sample Question Paper (Theory)

Time :- 3:00 hr **M.M. :- 70**

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(d) only.
8. All programming questions are to be answered using Python Language only.

Section :- A

1. State True or False 1

"A list of character is similar to a string type "

2. Which of the following is not a tuple function ? 1

(a) min ( ) (b) max( ) (c) update( ) (d) count( )

3. Write the output of the following code :- 1

```
a= {'a': "Apple", 'b': "Banana" , 'c': "Cat"}
a['a']= "Anar"
print (a)
```

(a) {'a': "Apple", 'b': "Banana" , 'c': "Cat"}
(b) Error
(c) {'a': ''Apple", 'a': "Anar", 'b': "Banana" , 'c': "Cat"}
(d) None of the above

4. Carefully observe the code and give the answer :- 1

```
def functions1(a) :
    a= a+ '1'
        a=a*2
    function1 ("hello")
```

(a) Indentation Error (c) cannot perform mathematical operation on strings
(b) hello2 (d) hello2hello2

5. What will be the output of the following Python code? 1

```
i = 2
while True:
   if i%3 == 0:
      break
   print(i)
   i += 2
```

(a) 2 4 6 8 10……. (c) 2 3
(b) 2 4 (d) error

6. Fill in the blanks :- 1

" The data types whose values cannot be changed in place are called _____ types "

7. What is the difference between r+ and w+ modes ? 1

(a) No difference
(b) In r+ mode , the pointer is initially placed at the beginning of the file and for w+ the pointer is placed at the end
(c) In w+ mode , the pointer is initially placed at the beginning of the file and for r+ the pointer is placed at the end
(d) Depends on the operating system.

8. What is the value of the following expression ? 1

21//4+6/3

(a) 7 (b) 7.33 (c) 7.25 (d) 7.0

9. What will be the output of following code if a = "abcde" 1

```
a [1:1 ] == a [1:2]
type (a[1:1]) == type (a[1:2])
```

10. What kind of transmission medium is most appropriate to carry data in a computer network that is exposed to electrical interferences? 1

(a) Unshielded twisted pair (c) Microwave
(b) Coaxial cable (d) Optical Fiber

11. Which of the following keywords will you use in the following query to display all the values of the column dept_name ? 1

Select _____ dept_name from company

(a) All (b) From (c) Distinct (d) Name

12. Which operator tests column for the absence of data (i.e. NULL value) ? 1

(a) EXISTS operator (b) NOT operator (c) IS operator (d) None of these

13. Mandatory argument required to connect any database from python 1

(a) Username, Password, Hostname, Database name, Port
(b) Username, Password, Hostname
(c) Username, Password, Hostname, Database name
(d) Username, Password, Hostname, Port

14. When iterating over an object returned from csv.reader(), what is returned with each iteration? For example, given the following code block that assumes csv_reader is an object returned from csv.reader(), what would be printed to the console with each iteration? 1

```
for item in csv_reader:
  print(item)
```

(a) The row data as a list
(b) The column data as a list
(c) The full line of the file as a string
(d) The individual value data that is separated by the delimiter

15. Read the following statement about feature of CSV file and select which statement is TRUE ? 1

Statement 1: Only database can support import/export to CSV format
Statement 2: CSV file can be created and edited using any text editor
Statement 3:All the columns of CSV file can be separated by comma ' ,' only

(a) Statement 1 and Statement 2
(b) Statement 2 and Statement 3
(c) Statement 2
(d) Statement 3

16. In order to open a connection with MySQL database from within Python using mysql.connector package _____ function is used . 1

(a) open ( ) (b) database ( ) (c) connect ( ) (d) connectdb ( )

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as

(a) Both (A) and (R) are correct and (R) is correct explanation of (A).
(b) Both (A) and (R) are correct and (R) is not the correct explanation of (A).
(c) (A) is True but (R) is False.
(d) (A) is False but (R) is True.

17. Assertion (A) : Data Integrity means that data is accurate and consistent in the database. 1
Reason (R) :- Data integrity also ensures that your data is safe from any outside forces.

18. Assertion (A) : A database can have only one table 1
Reason (R) :- if a piece of data is stored in two places in the database, then storage space is wasted.

SECTION B

19. Rewrite the following code in python after removing all syntax error(s) . Underline each correction done in the code :- 2

```
def  sum(c)
s=0
for i in Range (1, c+1)
s=s+i
      return s

print(sum(5)
```

20. Write an advantage and a disadvantage of using Optical fiber cable ? 2

OR

What is the basic difference between functioning of a hub and switch when both precisely connect computers into a network?

21. What is output of following codes :-

(a)
```
s= 'My'
s1= 'Blog'
s2=s[:1] +s1[len (s1)-1:]
print (s2)
```
1

(b)
```
d= {'x':1, 'y':2, 'z':3}
a=d.pop ('y')
print (a)
print (b)
```
1

22. What is the difference between primary key and unique constraints ? 2

23. (a) Expand the following terms :- 1
(i) SMTP (ii) POP

(b) What is the uses of microwave signals? 1

24. Determine the output of the following :- 2

```
def determine (s) :
    d= {"UPPER ": 0 , "LOWER":0}
    for c in s:
        if c.isupper ( ):
            d["UPPER"]+=1
        elif c.islower ( ) :
            d["LOWER"]+=1
```

```
        else:
            pass

    print ("Upper case count: ", d["UPPER"])
    print ("Lower case count: ", d["LOWER"])

determine ('These are HAPPY Times')
```

25. What is wrong with the following statement ? 2

```
SELECT  * FROM Employee
WHERE  grade = NULL;
```

Write the corrected form of above SQL statement .

SECTION C

26. (a) Give the output for the following SQL queries as per given table : 3

Table :- LAB

No	Itemname	CostPerItem	Quantity	DateofPurchase	Warranty	Operational
1	Computer	60000	9	21/05/1996	2	7
2	Printer	15000	3	21/05/1997	4	2
3	Scanner	18000	1	29/08/1998	3	1
4	Camera	21000	2	13/06/1996	1	2
5	Hub	8000	1	31/10/1999	2	1
6	UPS	5000	5	21/05/1996	1	4
7	Plotter	25000	2	11/01/2000	2	2

(i) SELECT MIN (DISTINCT Quantity) FROM LAB;
(ii) SELECT MIN (Warranty) FROM LAB WHERE Quantity = 2;
(iii) SELECT SUM(CostPerItem) FROM LAB WHERE Quantity =2;
(iv) SELECT AVG (CostPerItem) FROM LAB WHERE DateofPurchase < {01/01/1999}

(b) What is Equijoin ?

27. Write a function LShift (Arr, n) in Python , which accepts a list Arr of numbers and n is a numeric value by which all elements of the list are shifted to left . 3

Sample Input Data of the list
Arr = [10, 20,30,40,12,11], n=2
Output
Arr = [30,40,12,11,10,20]

28. Write a function AMCount( ) in Python ,which should read each character of a text file STORY.TXT , should count and display the occurrence of alphabets A and M (including small cases a and m also too). 3

Example :- If the file content is as follows :
Updated information
As simplified by official websites
The EUCount ( ) function should display the output as :
A or a :4
M or m :2

OR

Write a function in Python that counts the number of "Me" or "My" word present in a text file "STORY.TXT" , if the "STORY.TXT " contents are as follows :-

Mt first book
was Me and
My family .It
gave me
chance to be
known to the
world.

The output of the function should be :

Count of Me/My in file :

29. Consider the following tables PRODUCT and CLIENT . Write SQL command for the following statements: - 3

Table :- PRODUCT

P_ID	ProductName	Manufacturer	Price
TP01	Talcom Powder	LAK	45
Fw05	Face Wash	ABC	45
BS01	Bath Shop	ABC	55
SH06	Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

Table :- CLIENT

C_ID	ClientName	City	P_ID
01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty Women	Delhi	FW12
16	Dreams	Banglore	TP01

(i) To display the details of those Clients whose City is Delhi.
(ii) To display the details of Products whose Price is in the range of 50 to 100 (Both values included).
(iii) To display the ClientName, City from table Client and ProductName and Price from table Product with their corresponding matching P_ID.

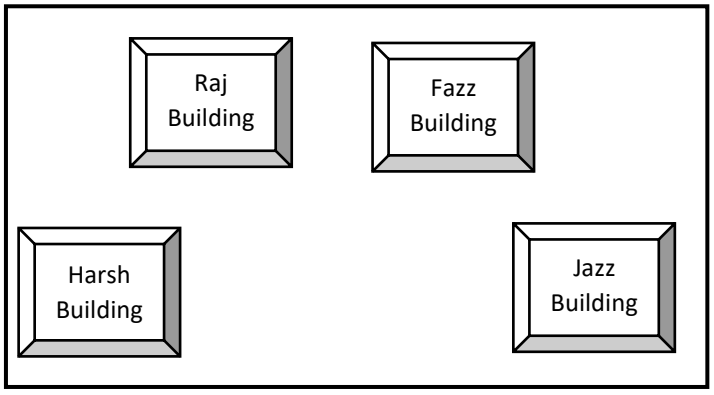
30. Write a function in Python , MakePush (Package) and MakePop (Package) to add a new package and delete a package from a List of Package Descriptions , considering them to act as push and pop operations of the Stack data structure . 3

OR

Write Addnew(Book) and Remove(Book) functions in Python to Add a new Book and Remove a Book from a List of Books , considering them to act as PUSH and POP operations of the data structure Stack .

SECTION D

31. (a) Ravya Industries has set up its new center at Kaka Nagar for its office and web based activities . The company compound has 4 buildings as shown in the diagram below : 4



Center to center distances between various building is as follows :

Harsh Building to Raj Building	50 m
Raj Building to Fazz Building	60 m
Fazz Building to Jazz Building	25 m
Jazz Building to Harsh Building	170 m
Harsh Building to Fazz Building	125 m
Raj Building to Jazz Building	90 m

Number of Computers in each of the building is as follows :-

Harsh Building	15
Raj Building	150
Fazz Building	15
Jazz Building	25

(i) Suggest a cable layout of connections between the buildings.
(ii) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason
(iii) Suggest the placement of the following devices with justifications:-\
(a) Internet Connecting Device /Modem (b) Switch
(iv) The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify you answer.

(b) Give any two example of e-wallets or Digital Wallets ? 1

32. (a) What possible output (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 varibales Lower and Upper . 2

```
import random
AR  = [20,30,40,50,60,70];
Lower = random.randint (1,3)
Upper= random.randint (2, 4)
For K in range (Lower, Upper +1):
     print ( AR [K] , end = "# ")
```

(i) 10 #40#70 # (ii) 30#40#50# (iii) 50#60#70# (iv) 40#50#70#

(b) Differentiate between fetchone ( ) and fetchcall ( ) method with suitable example for each . 3

OR

(a) Which names are local and which are global in the following code fragment ? 2

```
invader= "Big names "
pos = 200
level=1

def play ( ):
     max_level= level+10
     print(len(invanders) == 0
     returnmax_level
res =play ( )
print (res)
```

(b) (i) What is database cursor and resultset ? 2
(ii) Name two libraries that can be used to connect with MySQL database from within a Python program . 1

33. Ranjan Kumar of class 12 is writing a program to create a CSV file "user.csv" which will contain user name and password for some entries . He has written the following code . As a programmer, help him to successfully mexecute the given task : 5

```
import _____                                  # Line 1
def addCsvFile (UserName , Password ):
    f= open ('user.csv' , '_____')   # Line 2
    newFileWriter= csv.writer(f)
    newFileWriter.writerow ([UserName, PassWord ])
    f.close ()

#csv file reading code
def readCsvFile ( ):
    with open ( 'user.csv', 'r')  as newfile :
        newFileReader= csv._____ (newFile )        # Line 3
        for row in newFileReader :
            print (row [0], row [1])
    newFile ._____                          # Line 4
addCsvFile ("Arjun ", "123@456")
addCsvFile ("Arunima", "aru@nima")
addCsvFile ("Frieda ", "myname@FRD")
readCsvFile ( )                                # Line 5
```

(a) Name the module he should import in Line 1.
(b) In which mode , Ranjan should open the file to add data into the file
(c) Fill in the blank in Line 3 to read the data from a csv file.
(d) Fill in the blank in Line 4 to close the file.
(e) Write the output he will obtain while executing Line 5

SECTION E

34. A department store MyStore is considering to maintain their inventory using SQL to store the data . As a database administer , 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	Sharpener Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Get Pen Premium	21	150
2006	Get Pen Classic	21	250
2001	Eraser Small	22	220
2004	Eraser Big	22	110
2009	Ball Pen 0.5	21	180

(a) Identify the attribute best suitable to be declared as a primary key,
(b) Write the degree and cardinality of the table STORE .

(c) Insert the following data into the attribute ItemNo, ItemName and SCode respectively in the given table STORE

ItemNo =2010, ItemName = "Note Book " and Scode =25

(d) Abhay want to remove that table STORE from the database MyStore . Which command will he use from the following :

(i) DELETE FROM store; (ii) DROP TABLE store ;
(iii) DROP DATABASE mystore; (iv) DELETE store FROM mystore ;

OR

(d) Now Abhay wants to display the structure of the table STORE ,i.e. name of the attributes and their respective data types that he has used in the table . Write the query to display the same .

35. Ariba Malik has been given following incomplete code , which takes a student's details (rollnumber, name and marks) and writes into a binary file stu.dat using pickling . 4

```
import pickle
sturno = int (input ("Enter roll number:=" ))
stuname= input ("Enter name :")
stumarks= float (input ("Enter marks : "))
Stu1= {"RollNo. " : sturno , "Name " : stuname, "Marks " : stumarks }
with _____  as fh :                    # Fill_Line 1
     _____                             # Fill_Line 2
_____ as  fin :                        # Fill_Line 3
     _____                             # Fill_Line 4

    print (Rstu )
    if Rstu ["Marks"] >=85:
       print ("Eligible for merit certificate ")
    else :
       print ("Not eligible for merit certificate ")
```

help Ariba to computer the code as per the following instructions :-

(a) Complete Fill_Line 1 so that the mentioned binary file is opened for writing in fh object using a with statement.
(b) Complete Fill_Line 2 so that the dictionary Stu's contents are written on the file opened in step (a)
(c) Complete Fill_Line 3 so the the earlier created binary file is opened for reading in a file object namely fin using a with statement.
(d) Complete Fill_Line 4 so that the contents of open file in fin are read into a dictionary namely Rstu.

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KENDRIYA VIDYALAYA SANGATHAN MUMBAI REGION

Sample Question Paper 2022-23

Marking Scheme

Class- XII

Computer Science (083)

Maximum Marks : 70 **Time: 3 Hrs.**

SECTION – A

Q.No.	Answers	Marks
1.	**State True or False** **"In Python, a variable is a place holder for data"** **Ans:- False**	1
2.	**Which value type does input() return?** (a) **Boolean (b) String (c) int (d)float** **Ans:- (b) String**	1
3.	**Which is the correct form of declaration of dictionary?** (a) **D={1:'M' , 2: 'T' , 3:'W'}** (b) **D= {1;'M' , 2; 'T' , 3;'W'}** (c) **D= {1:'M' 2: 'T' 3:'W' }** (d) **D= {1:'M' ; 2: 'T' ; 3:'W'}** **Ans:- (a) D={1:'M' , 2: 'T' , 3:'W'}**	1
4.	**How would you write A^Y in Python as an expression?** (a) **A*Y (b) A**Y (c) A^Y (d) A^^Y** **Ans:- (b) A**Y**	1
5.	**What is the length of the tuple shown below: -** **T= (((('a',1), 'b', 'c'), 'd',2), 'e',3)** (a) **7 (b) 5 (c) 3 (d) 2** **Ans:- (c) 3**	1
6.	**The file mode to open a binary file for writing as well as reading is ----------** (a) **wb (b) wr (c) wb+ (d) wr+** **Ans:- (c) wb+**	1
7.	**Which of the following is not a legal constraint for create table command?** **(a)primary key (b) unique (c) check (d) distinct** **Ans:- (d) distinct**	1
8.	**Consider the following Sql statement . What type of statement is this?**	1

	SELECT* FROM Employee; **DML (b) DDL (c) TCL (d) DCL** **Ans:- (a) DML**	
9.	**Which of the following statements would give an error after executing the following code?** **T= 'green' # ---- Statement 1** **T[0]= 'G' #---- Statement 2** **T=[1 , 'B' ,14.5] #---- Statement 3** **T[3]=15 #---- Statement 4** **Options:-** (a) **Statement 2 and 4** (b) **Statement 1 and 2** (c) **Statement 3 and 4** (d) **Statement 1 and 3** **Ans:- (a)Statement 2 and 4**	**1**
10.	**Fill in the blank: -** **A---------- is a property of the entire relation , which ensures through its value that each tuple is unique in a relation.** **(a)Rows (b) key (c) Attribute (d) Field** **Ans:- (b) key**	**1**
11.	**What will be the output of the following statement in python? (fh is a file handle)** **fh.seek(-30,2)** **Options:- It will place the file pointer:-** **(a) at 30th byte ahead of current current file pointer position** **(b) at 30 bytes behind from end-of file** **(c) at 30th byte from the beginning of the file** **(d) at 5 bytes behind from end-of file** **Ans:- (b) at 30 bytes behind from end-of file**	**1**
12.	**Which of the following keywords will you use in the following query to display the unique values of the column dept_name?** **SELECT ---------- dept_name FROM Company;** **(a)All (b) key (c) Distinct (d) Name** **Ans:- (c) Distinct**	**1**

13.	**The physical address assigned by NIC manufacturer is called---------- address.** **(a)IP (b) MAC (c) TCP (d) URL** **Ans:- (b) MAC**	**1**
14.	**What will the following expression be evaluated to in Python?** **(Given values :- A=16 , B=15)** **print((14+13%15) +A%B//A)** **(a)14 (b) 27 (c) 12 (d) 0** **Ans:- (b) 27**	**1**
15.	**All aggregate functions except ----------ignore null values in their input collection.** **(a)max() (b) count(*) (c) Avg() (d) sum()** **Ans:- (b) count(*)**	**1**
16.	**After establishing database connection, database---------- is created so that the sql query may be executed through it to obtain resultset.** **(a)connector (b) connection (c) cursor (d) object** **Ans:- (c) cursor**	**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 default argument can be skipped in the function call statement.** **Reasoning (R):- The default values for parameters are considered only if no value is provided for that parameter in the function call statement.** **Ans:- (a) Both A and R are true and R is the correct explanation for A**	**1**
18.	**Assertion (A): CSV files are delimited files that store tabular data where comma delimits every value.** **Reason (R): For writing onto a CSV file , user data is written on txt.writer object which converts the user data into delimited form and writes it on to the csv file..** **Ans:- (c) A is True but R is False**	**1**

SECTION-B

Each question carries 2 marks

19. **The following Python code is supposed to print the largest word in a sentence but there are few errors. Rewrite the code after removing errors and underline each corrections made.** **2**

```
Str=input("Enter a sentence")
word=split()
print(word)
maxlen=0
largest=""
for i in word:
    l=len(i)
    if(l>maxlen):
        largest=l
print(largest)
```

Ans

```
Str=input("Enter a sentence")
word=Str.split()
print(word)
maxlen=0
largest=""
for i in word:
    l=len(i)
    if(l>maxlen):
        largest=i
        maxlen=l
print(largest)
```

20. **Write any two differences between telnet and ftp.** **2**

Ans:-

Key	TELNET	FTP
Definition	TELNET is an abbreviation for Telecommunication Network. It is simply a connection protocol that allows a user to connect to a remote server that is listening for commands. Once the connection is established, the user can issue commands to the server computer, and examine the responses that are sent back.	FTP stands for File Transfer Protocol and its primarily concern is to facilitate the transfer of files from one point to another, along with a few management capabilities like making and deleting directories.
Port Number Used	In general, TELNET uses the port number 23 for its command operations.	FTP uses port numbers 20 and 21 to establish a connection and perform file transfer operations.

Number of connections	Due to single operated port, TELNET can establish only one connection at a time.	FTP has two ports available, so it can establish two connections; one is for control command and another is for data transfer.
Remote Login	In case of TELNET, remote login is mandatory because issue commands could be run only after login.	Remote login is not mandatory in case of FTP.

Or

Write short notes on URLs and domain names.

Ans:-

A URL (Universal Resource Locator) is a complete web address used to find a particular web page. While the domain is the name of the website, a URL will lead to any one of the pages within the website. Every URL contains a domain name, as well as other components needed to locate the specific page or piece of content.
A domain is the name of a website, a URL is how to find a website, and a website is what people see and interact with when they get there.

21. **2**

1. A List is declared in Python as below

```
mylist=[34,65,-77,12,0,113,31]
```

Find the output of the command

```
mylist[:5]
```

Ans. **[34, 65, -77, 12, 0]**

2. Suppose a Tuple is declared as follows

```
mytup=(32,93,45,71,-89,111,100)
```

Guess the minimum value for K so, exception handling will print the IndexError message

```
try:
    for i in range( K ):
        print(mytup[i])
except IndexError:
    print("It's out of range now so stop")
```

Ans. **8**

22. **Differentiate between primary key and foreign key.** **2**

Ans:-

S.NO.	PRIMARY KEY	FOREIGN KEY
1	A primary key is used to ensure data in the specific column is unique.	A foreign key is a column or group of columns in a relational database table that provides a link between data in two tables.

	2	It uniquely identifies a record in the relational database table.	It refers to the field in a table which is the primary key of another table.	
	3	Only one primary key is allowed in a table.	Whereas more than one foreign key are allowed in a table.	
	4	It is a combination of UNIQUE and Not Null constraints.	It can contain duplicate values and a table in a relational database.	
	5	It does not allow NULL values.	It can also contain NULL values.	
	6	Its value cannot be deleted from the parent table.	Its value can be deleted from the child table.	
	7	It constraint can be implicitly defined on the temporary tables.	It constraint cannot be defined on the local or global temporary tables.	
23.	**1. Expand the following** **a. UDP b. CDMA** **Ans.** **a. UDP - User Datagram Protocol (UDP)** **b. CDMA – Code Division Multiple Access** **2. What is the use of Voip?** **Ans. Voice over Internet Protocol (VoIP), is a technology that allowing you to make voice calls over a broadband Internet connection instead of an analog (regular) phone line.**			**2**
24.	**What possible outputs are expected to be displayed on the screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable c.** **import random** **temp=[10,20,30,40,50,60]** **c=random.randint(0,4)** **for I in range(0, c):** **print(temp[i],"#")** **a) 10#20# b) 10#20#30#40#50#** **c) 10#20#30# d) 50#60#**			**2**

Ans:-

Minimum value of c is 0

Maximum value of c is 4

Possible Answers : 1,2,3

OR

Give output of the following:

```
def ChangeLst():
    L=[]
    L1=[]
    L2=[]
    for i in range(1,10):
        L.append(i)
    for i in range(10,1,-2):
        L1.append(i)
    for i in range(len(L1)):
        L2.append(L1[i]+L[i])
    L2.append(len(L)-len(L1))
    print(L2)
```

Ans:-

[11, 10, 9, 8, 7, 4]

25. **Differentiate between DELETE and DROP table commands with example.** **2**

Ans:-

Parameter	DELETE	DROP
Basic	It removes some or all the tuples from a table.	It removes entire schema, table, domain, or constraints from the database.
Language	Data Manipulation Language command	Data Definition Language command.
Clause	WHERE clause mainly used along with the DELETE command.	No clause required along with DROP command.

Rollback	**Actions performed by DELETE can be rolled back as it uses buffer.**	**Actions performed by DROP can't be rolled back because it directly works on actual data.**
Space	**space occupied by the table in the memory is not freed even if you delete all the tuples of the table using DELETE**	**It frees the table space from memory**

OR

Categorize the following commands as DDL or DML:
INSERT, DESC, ALTER, DELETE

Ans:-

DDL : ALTER, DESC
DML : INSERT, DELETE

SECTION – C

26. (a) **Based on the tables CAR and CUSTOMER write the output of the following query:** **1**

select * from Car NATURAL JOIN Customer;

Table : Car

Ccode	CarName	Make
501	A-Star	Suzuki
503	Indigo	Tata
502	Innova	Toyota
509	SX4	Suzuki
510	C Class	Mercedes
511	I-20	Tata

Table: Customer

Ccode	Address
502	Kolkata
509	Jaipur
502	Beas

Ans:-

Ccode	CarName	Make	Address
502	Innova	Toyota	Beas
502	Innova	Toyota	Kolkata
509	SX4	Suzuki	Jaipur

(1 mark for correct output)

(b) **Write the output of the queries (i) to (iv) based on the table, TRAVEL given below:** **2**

Table: TRAVEL

TNO	TNAME	TDATE	KM	TCODE	NOP
101	Janish	2015-02-18	100	101	32
102	Vedika	2014-06-06	65	101	45
103	Tarun	2012-10-09	32	104	42
104	John	2015-10-30	55	105	40
105	Ahmed	2015-12-15	47	101	16
106	Raveena	2016-02-26	82	103	9

1. **Select count(distinct TCODE) from Travel;**

Ans:-

Count(Distinct Tcode)
4

(½ mark for the correct output)

2. **Select TCODE , max(NOP), count(*) from Travel group by TCODE;**

Ans:-

TCODE	MAX(NOP)	COUNT(*)
101	45	3

(½ mark for the correct output)

3. **Select Tname from TRAVEL where NOP < 20 order by Tname desc;**

Ans.

TNAME
Raveena
Ahmed

(½ mark for the correct output)

4. **Select MIN(KM) from Travel where KM between 60 and 100;**

Ans.

MIN(KM)
65

(½ mark for the correct output)

27	**Write A Function COUNTWORDS( ) That Read A Text File 'PYTHON.TXT' And Display The Total Number Of Words which Begins By Uppercase Character.**	**3**

Ans.

```
def COUNTWORDS( ):
        fin=open('PYTHON.TXT', 'r')
        count=0
        for line in fin:
                    for i in line.split( ):
                    if i[0].isupper( ):
                                    count+=1
        print(count)
        fin.close( )

COUNTWORDS( )
```

(½ mark for correctly opening and closing the file
½ for correct loop
½ for correct if statement
½ for split ( )
½ for correctly incrementing count
½ for displaying correct output
)
Note: Any other relevant and correct code may be marked

OR

	Write a python function ALCount(), which should read each character of text file "STORY.TXT" and then count and display the number of lines which begins from character 'a' and '*l*' individually (including upper cases 'A' and 'L' too)	

Ans.

```
def ALCount( ):
    f = open('STORY.TXT' , 'r' )
```

```
            countA = 0
            countL = 0
            for line in f:
                if line[0] == 'A' or line[0] == 'a' :
                      countA+=1
                if line[0] == 'L' or line[0] == 'l' :
                      countL+=1
            print('A or a : ', countA)
            print('L or l : ', countL)
            f.close()
```

ALCount( )

(½ mark for correctly opening and closing the file
½ for correct loop
1 for correct if statement
½ for correctly incrementing count
½ for displaying correct output
)

Note: Any other relevant and correct code may be marked

28. **(a) Write the output of SQL queries (i) to (iv) based on table SCHOOLADMIN and ROADMIN, given below:** 3

Table: SCHOOLADMIN

ANO	NAME	STREAM	DOB	PHONE	FEE
101	Srishti B	Business Admin	2005-05-12	12343224	2000
102	Aman	Sciences	2005-11-02	67134324	4000
103	Shivam	Sciences	2006-01-23	51134324	3500
104	Banita	Business Admin	2005-10-12	13241934	2500
105	Myra	Fine Arts	2005-07-01	12445931	1500
106	Raghav	Humanities	2005-06-05	42155931	5000
107	Medini	Fine Arts	2005-09-05	51215931	1000
108	Udai Veer	Sciences	2006-11-25	55134324	4500

Table: ROADMIN

R_NO	STREAM	PLACE
1	Sciences	Agra
2	Fine Arts	Jaipur
3	Humanities	Tinsukia

(i) SELECT Stream, Max(FEE) FROM SCHOOLADMIN group by stream;

Ans.

Stream	Max(FEE)
Business Admin	2500
Sciences	4500
Fine Arts	1500
Humanities	5000

(½ mark for the correct output)

(ii) SELECT Max(DOB), Min(DOB) FROM SCHOOLADMIN WHERE STREAM != "Sciences ";

Ans.

Max(DOB)	Min(DOB)
2006-11-25	2005-11-02

(½ mark for the correct output)

(iii) **SELECT Name, Phone, R.Place, DOB FROM SCHOOLADMIN S ROADMIN R where WHERE S.Stream = R.Stream and ANO > 104;**

Ans.

Name	Phone	Place	DOB
105	12445931	Jaipur	2005-07-01
106	42155931	Tinsukia	2005-06-05
107	51215931	Jaipur	2005-09-05
108	55134324	Agra	2006-11-25

(½ mark for the correct output)

(iv) **SELECT NAME, Place FROM SCHOOLADMIN S, ROADMIN R WHERE STREAM="Fine Arts" and S.Stream = R.Stream;**

Ans.

Name	Place
Myra	Jaipur
Medini	Jaipur

(½ mark for the correct output)

(b) Write the command to view the structure of the table 'ROADMIN'.

	Ans. `desc ROADMIN;` **(1 mark for the correct answer)**	

29.	**Define a function add(a , b) where a and b are lists of same length.**
	1. **If length of the lists is not equal, function should display a message 'Length not equal'**
	2. **If length is equal then elements of both the lists should be added together and form a new list.**
	
	For example :
	A = [1, 2, 3, 4]
	B= [8,11,27, 14]
	C= [9, 13, 30, 18]
	
	Ans.
	`def add ( a , b ):`
	`  c=[ ]`
	`  if len(a) != len(b):`
	`  print('Length not equal')`
	`  else:`
	`  for i in range(len(a)):`
	`  c.append(a[i] + b[i] )`
	`  print(c)`
	
	`add ( [1,2,3,4] , [8,11,27,14] )`
	
	(½ **mark for correct function header**
	1 mark for correct loop
	1 mark for correct if statement
	½ **mark for append function**
	)
	
	Note: Any other relevant and correct code may be marked
		3

30.	**A list contains following record of a student:** **[SID, Name, Marks]** **Write the following user defined functions to perform given operations on the stack named STUD:**	**3**

	(i) Push_student(s) – To push an object containing SID and Name of student whose marks are more than 75 to the stack. **(ii) Pop_student( ) – To Pop the objects from the stack and display them. Also display 'Stack empty' when there is no element in the stack.** **Ans.** **STUD= [ ]** **def Push_Student(s):** **if s[2] > 75:** **L1 = [s[0],s[1]]** **STUD.append(L1)** **def Pop_student( ):** **num=len(STUD)** **while len(STUD) ! = 0:** **d=STUD.pop()** **print(d)** **num=num-1** **else:** **print("Stack empty")** **(1½ marks for correct push element and 1½ marks for correct pop element)**	

OR

	Write a function Push(STUD) in python, where STUD is a dictionary containing The details of stationary items- {Sname : marks}. **The function should push the names of those students in the stack who have marks less than 33. Also display the count of elements pushed into the stack.** **Ans.** **Stack= [ ]** **def Push(STUD):** **cnt= 0** **for k in STUD:** **if (STUD[k] < 33):** **Stack.aappend(k)** **Cnt = cnt + 1** **print(" The count of elements =",cnt)** **(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

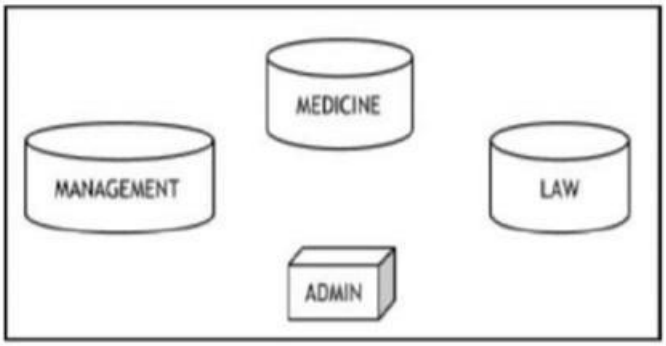
31.	**Bright training institute is planning to set up its centre in Amritsar with four specialised blocks for Medicine, Management, Law courses along with an Admission block in separate buildings. The physical distance between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries raised by their board of directors as given in (I) to (IV)**	**5**

Shortest distance between various locations in metres

Admin Block to Management Block	**60**
Admin Block to Medicine Block	**40**
Admin Block to Law Block	**60**
Management Block to Medicine Block	**50**
Management Block to Law Block	**110**
Law Block to Medicine Block	**40**

Number of Computers installed at various locations are as follows

Admin Block	**150**
Management Block	**70**
Medicine Block	**20**
Law Block	**50**



(i) Suggest the most suitable place to install the main server of this institution to get efficient connectivity.

Ans: Admin Block is the most appropriate place to install the main server as it has the maximum number of computers.

(1 mark for the correct answer)

(ii) Suggest the best wired medium and draw the best cable layout for effective network connectivity of the blocks having server with all the other blocks.

Ans. Fibre cable

	(ii)  **(½ mark for the correct wired medium , ½ mark for correct layout)** **(iii) Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following:** ● **Modem** ● **Switch** ● **Gateway** ● **Router** **Ans. Switch** **(1 mark for the correct answer)** **(iv) Suggest the most suitable wired medium for efficiently connecting computers installed in every building out of the following network cables.** ● **Coaxial cable** ● **Ethernet cable** ● **Single pair** ● **Telephone cable.** **Ans. Ethernet cable** **(1 mark for the correct answer)** **(v) Mr X works in the admin block and he usually connects his projector to his mobile phone for presentation purpose. Identify the type of network he creates** ● **PAN** ● **LAN** ● **MAN** ● **WAN** **Ans. PAN** **(1 mark for the correct answer)**	

32.	**(a) Find and write the output of the following Python code:** ***def Show(str):*** ***m=""*** ***for i in range(0,len(str)):*** ***if(str[i].isupper()):*** ***m=m+str[i].lower()*** ***elif str[i].islower():***	2

```
        m=m+str[i].upper()
    else:
        if i%2!=0:
                    m=m+str[i-1]
        else:
                    m=m+"#"
  print(m)

Show('CBSE kvs')
```

Ans. cbse#KVS

(1 mark for cbse and 1 mark for #KVS)

(b) The code given below inserts the following record in the table "Library": 3

BID – integer
BTitle – string
Pages – Integer
Price – Integer

Note the following to establish connectivity between Python and MySQL:

- **Username is root**
- **Password is kvs**
- **The table exists in MySQL database name LIB.**
- **The details (BID, BTitle, Pages, Price) are to be accepted from 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 record in table
Statement-3 : to add the record permanently in the database

```
import mysql.connector as mc
def sql_data( ):
    con1=mc.connect(host="localhost", user='root',
          password='kvs', database='LIB')
    mycur= _____                          # Statement-1
    BID=int(input('Enter book ID='))
    BTitle=input('Enter book title=')
    Pages = int(input("Enter no. of pages="))
    Price = int(input("Enter book price="))
    Qry="insert into library values ( { }, '{ }', { }, { })". format(BID,
                BTitle, Pages, Price)
    _____                                 # Statement-2

    _____                                 # Statement-3
    print('Data added in the table")
```

Ans:

Statement-1: con1.cursor()

	Statement-2: mycur.execute(Qry) **Statement-3: con1.commit()** **(1 mark for each correct answer)**	

OR

	(a) Find and write the output of the following python code: *def changer(p,q=10):* *p=p/q* *q=p%q* *print(p, '#',q)* *return p* *a=200* *b=20* *a=changer(a,b)* *print(a,'$',b)* *b=changer(b)* *print(a,'$',b)* **Ans:** **10.0 # 10.0** **10.0 $ 20** **2.0 # 2.0** **10.0 $ 2.0** **(½ mark for each correct line output)**	**2**
	(b) The code given below reads the following record from the table "Library" and display only those records who have price less than 500: ***BID – integer*** ***BTitle – string*** ***Pages – Integer*** ***Price – Integer*** **Note the following to establish connectivity between Python and MySQL:** - **Username is root** - **Password is kvs** - **The table exists in MySQL database name LIB.** **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 books whose Price is less than 500** **Statement-3 : to read the complete result of the query into the object data, from the table Library in the database.**	**3**

```
import mysql.connector as mc
def sql_data( ):
    con1=mc.connect(host="localhost", user='root',
        password='kvs', database='LIB')
    mycur= _____                          # Statement-1
    print("Books with price less than 500 are: ")
    _____                                 # Statement-2

    data = _____                          # Statement-3
    for i in data:
        print(i)
    print( )
```

Ans:

Statement-1: con1.cursor()

Statement-2: mycur.execute("select * from library where price < 500")

Statement-3: mycur.fetchall( )

(1 mark for each correct statement)

---

33. **Give any one point of difference between 'writerow ( ) ' and 'writerows ( )' functions.** 5

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

(i) **ADD ( ) - To accept and add data of a SHOP to a CSV file "shop.csv". Each record consists of a list with field elements as shopno, name and address to store shop number, shop name and shop address respectively.**

(ii) **COUNTS( )- To count the number of records present in the CSV File named "shop.csv"**

Ans.

The technical difference is that writerow is going to write a list of values into a single row whereas writerows is going to write multiple rows from a buffer that contains one or more lists.

Program:

```
import csv
def ADD( ):
    fout = open("shop.csv", 'a', newline= '\n')
    wr=csv.writer(fout)
    shopno=int(input("Enter Shop No.= "))
```

```
        name=input("Enter Shop name = ")
        address=input("Enter Address= "))
        lst=[shopno,name,address] --------- ½ mark
        wr.writerow(lst) --------- ½ mark
        fout.close()
def COUNTS ():
        fin=open("shop.csv","r",newline="\n")
        data=csv.reader(fin)
        d=list(data)
        print(len(d))
        fin.close()
ADD()
COUNTS()
```

(1 mark for difference
½ mark for importing CSV module
1 ½ mark each for correct definition of ADD() and COUNTS()
½ mark for function call statements)

OR

How rb+ is different from ab+ mode of file handling? **5**

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

(i) **CreateFile( ) - to create a binary file record.dat having following data fields [rollno, name, class ,section , percentage] the function should be able to insert multiple records in the file.**

(ii) **searchRecord(num) - to accepts the rollno as argument and display the details of that rollno.**

Ans:

rb+: To open a binary file for both read and write
ab+: To open a binary file for both append and read

Program:

```
import pickle
def createfile( ):
    f = open ( 'record.dat' , 'wb' )
    while True:
        rno = int ( input ('Enter the roll number  : ' ) )
        name = input ( 'Enter the name : ' )
        clas = int (input ('Enter Class : ') )
        section = input ( 'Enter Section : ' )
        per = float (input ( 'Enter percentage : ' ) )
```

```
        record = [rno,name,clas,section,per]
        pickle.dump ( record,f )
        choice = input ( 'Do you have more records (y/n) : ' )
        if choice == 'n' or choice == 'N':
            break
    f.close( )


def searchRecord(num):
       f=open('record.dat','rb+')
       found=0
       try:
             while True:
                      record = pickle.load ( f )
                     if record[0] == num:
                           print(record)
                          found=1
                          break
          except EOFError:
               pass
           if found==0:
               print('Record not found')
    f.close( )


createfile()
rn=int(input('Enter roll no. to search=');
searchRecord(rn)
```

(1 mark for difference
½ mark for importing pickle module
1½ marks each for correct definition of createfile() and searchRecord()
½ mark for function call statements)

	SECTION -E Each question carries 4 marks	
34.	**A Multinational Company XYZ is considering to maintain the records of their employee using SQL to store the data. As a database administer, Abhinay has decided that :** • **Name of the database - db** • **Name of the table – EMPLOYEE**	**4**

EMPLOYEE

EMPID	FIRSTANAME	LASTNAME	Hire_Date	ADDRESS	CITY
1001	George	Smith	11-May-06	83 first street	Paris
1002	Mary	Jones	25-Feb-08	842 Vine Ave	Losantiville
1012	Sam	Tones	12-Sep-05	33 Elm St.	Paris
1015	Peter	Thompson	19-Dec-06	11 Red Road	Paris
1016	Sarath	Sharma	22-Aug-07	440 MG Road	New Delhi
1020	Monika	Gupta	07-Jun-08	9 Bandra	Mumbai

(a) Identify the attribute best suitable to be declared as a primary key as well as foreign key.

Ans. empid

(b) Write the degree and cardinality of the table EMPLOYEE.

Ans. Degree – 6

Cardinality - 6

(c) Insert the following data into the attributes EMPID, FIRSTNAME, LASTNAME, Hire_Date ADDRESS and CITY respectively in the given table EMPLOYEE.
EMPID=1201, FIRSTNAME=Amit, LASTNAME=Singh, Hire_Date=01-Aug-2020 ADDRESS=222E South City and CITY= Kolkata.

Ans. INSERT INTO EMPLOYEE values(1201,"Amit","Singh","2020-08-01"," 222E South City","Kolkata")

(d) Abhinay want to remove the table EMPLOYEE from the database db. Which command will he use.

Ans. Drop table employee;

35. **Ratnesh of class 12 is writing a program to create a CSV file "student.csv" which will contain Name, Date of Birth and place. He has written the following code. As a programmer, help him to successfully execute the given task.** **4**

```
import _______ #Line 1
with open('E:/student.csv',_________) as f: #Line 2
        w = csv. _______(f) #Line 3
        ans= 'y'
        while (ans== 'y'):
                name= input("Name?: ")
               date = input("Date of birth: ")
               place = input("Place: ")
                w.writerow([name, date, place])
                ans=input("Do you want to enter more y/n?: ")
        F=open("E:/student.csv", 'r')
        reader = csv._________(F) #Line 4
```

	for row in reader: **print(row)** **F._____( ) #Line 5** **(a) Name the module he should import in Line 1.** **Ans. CSV** **(b) In which mode, Ratnesh should open the file to add data into the file.** **Ans. a or a+** **(c) Fill in the blank in Line 3 to write the data to the csv file.** **Ans. writer** **(d) Fill in the blank in Line 4 to read the data from a csv file.** **Ans. reader**	

KENDRIYA VIDYALAYA SANGATHAN MUMBAI REGION

Sample Question Paper 2022-23

Class- XII
Computer Science (083)

Maximum Marks : 70 **Time: 3 Hrs.**

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

	SECTION – A	
Q.No.	**QUESTIONS**	**Marks**
1.	**State True or False** **"In Python, a variable is a place holder for data"**	**1**
2.	**Which value type does input() return?** (a) **Boolean** **(b) String** **(c) int** **(d)float**	**1**
3.	**Which is the correct form of declaration of dictionary?** (a) **D={1:'M' , 2: 'T' , 3:'W'}** (b) **D= {1;'M' , 2; 'T' , 3;'W'}** (c) **D= {1:'M' 2: 'T' 3:'W' }** (d) **D= {1:'M' ; 2: 'T' ; 3:'W'}**	**1**
4.	**How would you write A^Y in Python as an expression?** (a) **A*Y** **(b) A**Y** **(c) A^Y** **(d) A^^Y**	**1**
5.	**What is the length of the tuple shown below: -** **T= (((('a',1), 'b', 'c'), 'd',2), 'e',3)** **(a) 7** **(b) 5** **(c) 3** **(d) 2**	**1**
6.	**The file mode to open a binary file for writing as well as reading is ----------** (a) **wb** **(b) wr** **(c) wb+** **(d) wr+**	**1**
7.	**Which of the following is not a legal constraint for create table command?** **(a)primary key** **(b) unique** **(c) check** **(d) distinct**	**1**

8.	**Consider the following Sql statement . What type of statement is this?** **SELECT* FROM Employee;** (a) **DML (b) DDL (c) TCL (d) DCL**	**1**
9.	**Which of the following statements would give an error after executing the following code?** **T= 'green' # ---- Statement 1** **T[0]= 'G' #---- Statement 2** **T=[1 , 'B' ,14.5] #---- Statement 3** **T[3]=15 #---- Statement 4** **Options:-** (a) **Statement 2 and 4** (b) **Statement 1 and 2** (c) **Statement 3 and 4** (d) **Statement 1 and 3**	**1**
10	**Fill in the blank: -** **A---------- is a property of the entire relation , which ensures through its value that each tuple is unique in a relation.** **(a)Rows (b) key (c) Attribute (d) Field**	**1**
11	**What will be the output of the following statement in python? (fh is a file handle)** **fh.seek(-30,2)** **Options:-** **It will place the file pointer:-** **(a) at 30th byte ahead of current current file pointer position** **(b) at 30 bytes behind from end-of file** **(c) at 30th byte from the beginning of the file** **(d) at 5 bytes behind from end-of file**	**1**
12	**Which of the following keywords will you use in the following query to display the unique values of the column dept_name?** **SELECT ---------- dept_name FROM Company;** **(a)All (b) key (c) Distinct (d) Name**	**1**
13	**The physical address assigned by NIC manufacturer is called----------address.** **(a)IP (b) MAC (c) TCP (d) URL**	**1**

14	**What will the following expression be evaluated to in Python?** **(Given values :- A=16 , B=15)** **print((14+13%15) +A%B//A)** **(a)14 (b) 27 (c) 12 (d) 0**	**1**
15	**All aggregate functions except ----------ignore null values in their input collection.** **(a)max() (b) count(*) (c) Avg() (d) sum()**	**1**
16	**After establishing database connection, database---------- is created so that the sql query may be executed through it to obtain resultset.** **(a)connector (b) connection (c) cursor (d) object**	**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 default argument can be skipped in the function call statement.** **Reasoning (R):- The default values for parameters are considered only if no value is provided for that parameter in the function call statement.**	**1**
18	**Assertion (A): CSV files are delimited files that store tabular data where comma delimits every value.** **Reason (R): For writing onto a CSV file , user data is written on txt.writer object which converts the user data into delimited form and writes it on to the csv file.**	**1**

	SECTION – B **Each question carries 2 marks**	
Q.No.	**QUESTIONS**	**Marks**
19.	**The following Python code is supposed to print the largest word in a sentence but there are few errors. Rewrite the code after removing errors and underline each corrections made.** **Str=input("Enter a sentence")** **word=split()** **print(word)**	**2**

	maxlen=0 **largest=""** **for i in word:** **l=len(i)** **if(l>maxlen):** **largest=l** **print(largest)**	
20.	**Write any two differences between telnet and ftp.** **Or** **Write short notes on URLs and domain names.**	**2**
21.	**1. A List is declared in Python as below** **mylist=[34,65,-77,12,0,113,31]** **Find the output of the command** **mylist[:5]** **2. Suppose a Tuple is declared as follows** **mytup=(32,93,45,71,-89,111,100)** **Guess the minimum value for K so, exception handling will print the IndexError message** **try:** **for i in range(K):** **print(mytup[i])** **except IndexError:** **print("It's out of range now so stop")**	**2**
22.	**Differentiate between primary key and foreign key.**	**2**
23.	**1. Expand the following** **a. UDP b. CDMA** **2. What is the use of Voip?**	**2**
24.	**What possible outputs are expected to be displayed on the screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable c.** **import random** **temp=[10,20,30,40,50,60]** **c=random.randint(0,4)** **for I in range(0, c):** **print(temp[i],"#")** **a) 10#20# b) 10#20#30#40#50#** **c) 10#20#30# d) 50#60#** **OR** **Give output of the following:** **def ChangeLst():**	**2**

```
L=[]
L1=[]
L2=[]
for i in range(1,10):
        L.append(i)
for i in range(10,1,-2):
        L1.append(i)
for i in range(len(L1)):
        L2.append(L1[i]+L[i])
L2.append(len(L)-len(L1)
print(L2)
```

25. Differentiate between DELETE and DROP table commands with example. **2**

OR

Categorize the following commands as DDL or DML:
INSERT, DESC, ALTER, DELETE

SECTION – C

26. **(a)** **Based on the tables CAR and CUSTOMER write the output of the following query:** **1+2**

select * from Car NATURAL JOIN Customer;

Table : Car

Ccode	CarName	Make
501	A-Star	Suzuki
503	Indigo	Tata
502	Innova	Toyota
509	SX4	Suzuki
510	C Class	Mercedes
511	I-20	Tata

Table: Customer

Ccode	Address
502	Kolkata
509	Jaipur
502	Beas

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

Table: TRAVEL

TNO	TNAME	TDATE	KM	TCODE	NOP
101	Janish	2015-02-18	100	101	32
102	Vedika	2014-06-06	65	101	45
103	Tarun	2012-10-09	32	104	42
104	John	2015-10-30	55	105	40

105	Ahmed	2015-12-15	47	101	16
106	Raveena	2016-02-26	82	103	9

1. ***Select count(distinct TCODE) from Travel;***
2. ***Select TCODE , max(NOP), count(*) from Travel group by TCODE;***
3. ***Select Tname from TRAVEL where NOP < 20 order by Tname desc;***
4. ***Select MIN(KM) from Travel where KM between 60 and 100;***

27. **Write a function countwords( ) that read a file 'python.txt' and display the total number of words which begins by uppercase character.** **3**

Example:

Suppose the file have following text:

'Python is a powerful, user friendly and platform independent Language'

Output of function should be : 2

OR

Write a python function ALCount(), which should read each character of text file "STORY.TXT" and then count and display the number of lines which begins from character 'a' and '*l*' individually (including upper cases 'A' and 'L' too)

Example:

Suppose the file content is as below:

A python is a powerful
Language is user friendly
It is platform independent Language

Output of function should be :
A or a: 1
L or l : 1

28. **(a) Write the output of SQL queries (i) to (iv) based on table SCHOOLADMIN and ROADMIN, given below:** **3**

Table: SCHOOLADMIN

ANO	NAME	STREAM	DOB	PHONE	FEE
101	Srishti B	Business Admin	2005-05-12	12343224	2000
102	Aman	Sciences	2005-11-02	67134324	4000
103	Shivam	Sciences	2006-01-23	51134324	3500
104	Banita	Business Admin	2005-10-12	13241934	2500
105	Myra	Fine Arts	2005-07-01	12445931	1500
106	Raghav	Humanities	2005-06-05	42155931	5000

107	Medini	Fine Arts	2005-09-05	51215931	1000
108	Udai Veer	Sciences	2006-11-25	55134324	4500

Table: ROADMIN

R_NO	STREAM	PLACE
1	Sciences	Agra
2	Fine Arts	Jaipur
3	Humanities	Tinsukia

(i) ***SELECT Stream, Max(FEE) FROM SCHOOLADMIN group by stream;***

(ii) ***SELECT Max(DOB), Min(DOB) FROM SCHOOLADMIN WHERE STREAM != "Sciences";***

(iii) ***SELECT Name, Phone, R.Place, DOB FROM SCHOOLADMIN S ROADMIN R where WHERE S.Stream = R.Stream and ANO > 104;***

(iv) ***SELECT NAME, Place FROM SCHOOLADMIN S, ROADMIN R WHERE STREAM="Fine Arts" and S.Stream = R.Stream;***

(b) Write the command to view the structure of the table 'ROADMIN'

29. **Define a function add(a , b) where a and b are lists of same length.** **3**

1. **If length of the lists is not equal, function should display a message 'Length not equal'**
2. **If length is equal then elements of both the lists should be added together and form a new list.**

For example :

A = [1, 2, 3, 4]
B= [8,11,27, 14]
C= [9, 13, 30, 18]

30. **A list contains following record of a student:** **3**
[SID, Name, Marks]

Write the following user defined functions to perform given operations on the stack named STUD:

(i) ***Push_student(s) – To push an object containing SID and Name of student whose marks are more than 75 to the stack.***

(ii) ***Pop_student( ) – To Pop the objects from the stack and display them. Also display 'Stack empty' when there is no element in the stack.***

OR

Write a function Push(STUD) in python, where STUD is a dictionary containing The details of stationary items- {Sname : marks}.
The function should push the names of those students in the stack who have marks less than 33. Also display the count of elements pushed into the stack.

SECTION – D

31. **5**

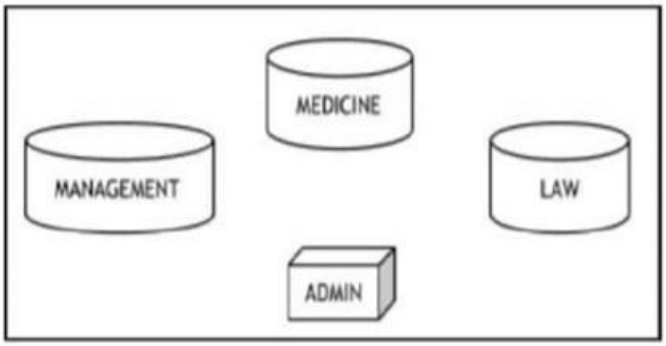
Bright training institute is planning to set up its centre in Amritsar with four specialised blocks for Medicine, Management, Law courses along with an Admission block in separate buildings. The physical distance between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries raised by their board of directors as given in (I) to (IV)

Shortest distance between various locations in metres

Admin Block to Management Block	**60**
Admin Block to Medicine Block	**40**
Admin Block to Law Block	**60**
Management Block to Medicine Block	**50**
Management Block to Law Block	**110**
Law Block to Medicine Block	**40**

Number of Computers installed at various locations are as follows

Admin Block	**150**
Management Block	**70**
Medicine Block	**20**
Law Block	**50**



(i) ***Suggest the most suitable place to install the main server of this institution to get efficient connectivity.***

(ii) ***Suggest the best wired medium and draw the best cable layout for effective network connectivity of the blocks having server with all the other blocks.***

(iii) ***Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following:***

- ***Modem***
- ***Switch***
- ***Gateway***
- ***Router***

(iv) ***Suggest the most suitable wired medium for efficiently connecting computers installed in every building out of the following network cables.***

- ***Coaxial cable***
- ***Ethernet cable***
- ***Single pair***
- ***Telephone cable.***

	(v) Mr X works in the admin block and he usually connects his projector to his mobile phone for presentation purpose. Identify the type of network he creates ● ***PAN*** ● ***LAN*** ● ***MAN*** ● ***WAN***	

32.	**(a) Find and write the output of the following Python code:** ***def Show(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)*** ***Show('CBSE kvs')***	**2+3**
	(b) The code given below inserts the following record in the table "Library": ***BID – integer*** ***BTitle – string*** ***Pages – Integer*** ***Price – Integer*** **Note the following to establish connectivity between Python and MySQL:** - ***Username is root*** - ***Password is kvs*** - ***The table exists in MySQL database name LIB.*** - ***The details (BID, BTitle, Pages, Price) are to be accepted from 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 record in table** **Statement-3 : to add the record permanently in the database** ***import mysql.connector as mc*** ***def sql_data( ):*** ***con1=mc.connect(host="localhost", user='root',*** ***password='kvs', database='LIB')*** ***mycur= _____ # Statement-1*** ***BID=int(input('Enter book ID='))*** ***BTitle=input('Enter book title=')***	

	Pages = int(input("Enter no. of pages=")) ***Price = int(input("Enter book price="))*** ***Qry="insert into library values ({ }, '{ }', { }, { })". format(BID, BTitle, Pages, Price)*** ***_____ # Statement-2*** ***_____ # Statement-3*** ***print('Data added in the table")***	

OR

	(a) Find and write the output of the following python code: ***def changer(p,q=10):*** ***p=p/q*** ***q=p%q*** ***print(p,'#',q)*** ***return p*** ***a=200*** ***b=20*** ***a=changer(a,b)*** ***print(a,'$',b)*** ***b=changer(b)*** ***print(a,'$',b)***	
	(b) The code given below reads the following record from the table "Library" and display only those records who have price less than 500: ***BID – integer*** ***BTitle – string*** ***Pages – Integer*** ***Price – Integer*** **Note the following to establish connectivity between Python and MySQL:** - **Username is root** - **Password is kvs** - **The table exists in MySQL database name LIB.** **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 books whose Price is less than 500** **Statement-3 : to read the complete result of the query into the object data, from the table Library in the database.** ***import mysql.connector as mc*** ***def sql_data( ):*** ***con1=mc.connect(host="localhost", user='root', password='kvs', database='LIB')*** ***mycur= _____ # Statement-1***	

	print("Books with price less than 500 are: ") *_____* *# Statement-2* *data = _____* *# Statement-3* *for i in data:* *print(i)* *print( )*	

33.	**Give any one point of difference between 'writerow ( ) ' and 'writerows ( )' functions.** **Write a program in Python that defines and calls the following user defined functions:** ***(i) ADD ( ) - To accept and add data of a SHOP to a CSV file "shop.csv". Each record consists of a list with field elements as shopno, name and address to store shop number, shop name and shop address respectively.*** ***(ii) COUNTS( )- TO count the number of records present in the CSV File named "shop.csv"*** **OR** **How rb+ is different from ab+ mode of file handling?** **Write a program in Python that defines and calls the following user defined functions:** (i) ***CreateFile( ) - to create a binary file record.dat having following data fields [rollno, name, class ,section , percentage] the function should be able to insert multiple records in the file.*** (ii) ***searchRecord(num) - to accepts the rollno as argument and display the details of that rollno.***	**5**

	SECTION – E **Each question carries 4 marks**	
Q.No.	**QUESTIONS**	**Marks**
34.	**A Multinational Company XYZ is considering to maintain the records of their employee using SQL to store the data. As a database administer, Abhinay has decided that :** **• Name of the database - db** **• Name of the table – EMPLOYEE**	**4**

EMPLOYEE

EMPID	FIRSTANAME	LASTNAME	Hire_Date	ADDRESS	CITY
1001	George	Smith	11-May-06	83 first street	Paris
1002	Mary	Jones	25-Feb-08	842 Vine Ave	Losantiville
1012	Sam	Tones	12-Sep-05	33 Elm St.	Paris
1015	Peter	Thompson	19-Dec-06	11 Red Road	Paris
1016	Sarath	Sharma	22-Aug-07	440 MG Road	New Delhi
1020	Monika	Gupta	07-Jun-08	9 Bandra	Mumbai

(a) Identify the attribute best suitable to be declared as a primary key as well as foreign key.

(b) Write the degree and cardinality of the table EMPLOYEE.

(c) Insert the following data into the attributes EMPID, FIRSTNAME, LASTNAME, Hire_Date ADDRESS and CITY respectively in the given table EMPLOYEE.
EMPID=1201, FIRSTNAME=Amit, LASTNAME=Singh, Hire_Date=01-Aug-2020 ADDRESS=222E South City and CITY= Kolkata.

(d) Abhinay want to remove the table EMPLOYEE from the database db. Which command will he use.

35. **Ratnesh of class 12 is writing a program to create a CSV file "student.csv" which will contain Name, Date of Birth and place. He has written the following code. As a programmer, help him to successfully execute the given task.** **4**

```
import _______ #Line 1
with open('E:/student.csv',_________) as f: #Line 2
        w = csv. _______(f) #Line 3
        ans= 'y'
        while (ans== 'y'):
                name= input("Name?: ")
               date = input("Date of birth: ")
               place = input("Place: ")
                w.writerow([name, date, place])
                ans=input("Do you want to enter more y/n?: ")
        F=open("E:/student.csv", 'r')
        reader = csv._________(F) #Line 4
        for row in reader:
              print(row)
        F._______( ) #Line 5
```

(a) Name the module he should import in Line 1.

(b) In which mode, Ratnesh should open the file to add data into the file.

(c) Fill in the blank in Line 3 to write the data to the csv file.

(d) Fill in the blank in Line 4 to read the data from a csv file.

Class: XII Session: 2022-23

Computer Science (083)

Sample Question Paper (Theory)

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 choice is given in Q35 against part c only.

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

SECTION A		
1	In a Python program, a control structure: (A) Defines program-specific data structre (B) Directs the order of Execution of statements in the program (C) Dictates what happens before the program starts and after it terminates (D) None of above ANS : B	1marks each
2	Find the invalid Identifier from the following: (A) Myname (B) 1Myname (C) My_name (D) Myname2 ANS : B	1marks each
3	Which of the following is invalid method for fetching the records from database within Python ? (A) fetchone() (B) fetchmany() (C) fetchall() (D) fetchmulti() ANS : D	1marks each
4	What is the default EOL Character in python ? (A) \n (B) \t (C) \l (D) \h ANS : A	1marks each
5	This method is used to load (unpickling) data from binary file (A) load() (B) dump() (C) seek() (D) tell()	1marks each

	ANS : A	
6	Identify the valid arithmetic operator in python (A) ? (B) < (C) ** (D) and ANS : C	1marks each
7	Given the following dictionaries dict_exam={"Exam":"AISSCE", "Year":2023} dict_result={"Total":500, "Pass_Marks":165} Which statement will merge the contents of both dictionaries? a. dict_exam.update(dict_result) b. dict_exam + dict_result c. dict_exam.add(dict_result) d. dict_exam.merge(dict_result) ANS : A	1marks each
8	Consider the given expression False, True, NOT, OR, True, False,AND,OR Which of the following is the correct output if expression is evaluated? (A) True (B) False (C) None (D) Null ANS : B	1marks each
9	Give the output of the following x=3 x+=x-x print(x) (A) 3 (B) 0 (C) 2 (D) 1 ANS : A	1marks each
10	Bluetooth is an example of (A) LAN (B) WAN (C) PAN (D) Virtual private network ANS : C	1marks each
11	State true or false " Immutable data type are those that can never change their values " ANS TRUE	1marks each

12	Which of the following statement(s) would give an error after executing the following code?
	x=50 # Statement 1
	Def func(x) # Statement 2
	x=2 # Statement 3
	func(x) # Statement 4
	print(x) # Statement 5
	
	(A) Statement 1 (B) Statement 3 & 4 (C) statement 4 (D) Statement 2
	
	ANS : D
		1marks each

13	which of the following is the correct output for executing the following python statement? print(5 + 3**2 / 2) (A) 32 (B) 8.0 (C) 9.5 (D) 32.0 ANS : C	1marks each

14	Which topology is based on a central node which acts as a hub ? (A) Bus topology (B) Star topology (C) Tree topology (D) Hybrid Topology ANS : B	1marks each
15	To establish a connection between Python and SQL database, what of the following statement is connecting database server? (A) importMySQLdb (B) MySQLdb.connect (C) db.cursor (D) None of the above ANS : B	1marks each
16	_____function place the pointer at the specified position of the file pointer by in an opening file. (A) seek() b) tell() c) read() d) load() ANS A	1marks each
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 a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s). ANS : C A is True but R is False	1marks each
18	Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by comma. ANS : (A) Both A and R are true and R is the correct explanation for A	1marks each
SECTION B		
19	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 Lower and Upper. import random AR=[20,30,40,50,60,70]; Lower=random.randint(1,3) Upper=random.randint(2,4) for K in range(Lower, Upper+1): print (AR[K],end="#") (A) 10#40#70# (B) 30#40#50# (C) 50#60#70# (D) 40#50#70#	1marks for each correct answer

	ans : (B) Maximum value that assigned to Lower and Upper is 3 and 4 respectively	
20	(a) Write the full form of the following i) ARPANET ii) WiMax ANS : i) ARPANET : Advanced Research Project Agency for Networking ii) WiMax : Worldwide Interoperability for Microwave Access (b) Name the different guided media for data transmission. Ans : twisted pair, coaxial cable , optical fibre , ethernet cable	1marks for a and b
21	Predict the output of the following code def Alter(M,N=50): M=M+N N=M-N print(M,"@",N) return(M) A=200 B=100 A=Alter(A,B) print(A,"#",B) B=Alter(B) print(A,"@",B) Ans : 300 @ 200 300 # 100 150 @ 100 300 @ 150	½ marks for each correct row

22	Rewrite the following code in Python after removing all syntax error(s).
	Underline each correction done in the code.
	30= Value
	for VAL in range(0,Value)
	If val%4=0:
	print (VAL*4)
	Else val%5==0:
	print (VAL+3)
	Ans :
	Value=30
	for VAL in range(0,Value) :
	if val%4 = = 0:
	print (VAL*4)
	else val%5==0:
	print (VAL+3)
		2
		
		½ marks for each correct row

23	What are the different switching techniques in networking ? Ans : circuit switching, packet switching, message switching (1 marks) (1 marks for brief introduction of each techniques)	1marks for each correct row

<table>
<tr><td>24</td><td>(a) Given is a Python string declaration:
title="## T20 W’Cup 2022@@"
Write the output of: print(title[::-1])

(b) Write the output of the code given below:
my_dict = {"name": "Aman", "age": 26}
my_dict['age'] = 27
my_dict['address'] = "Delhi"
print(my_dict.items())

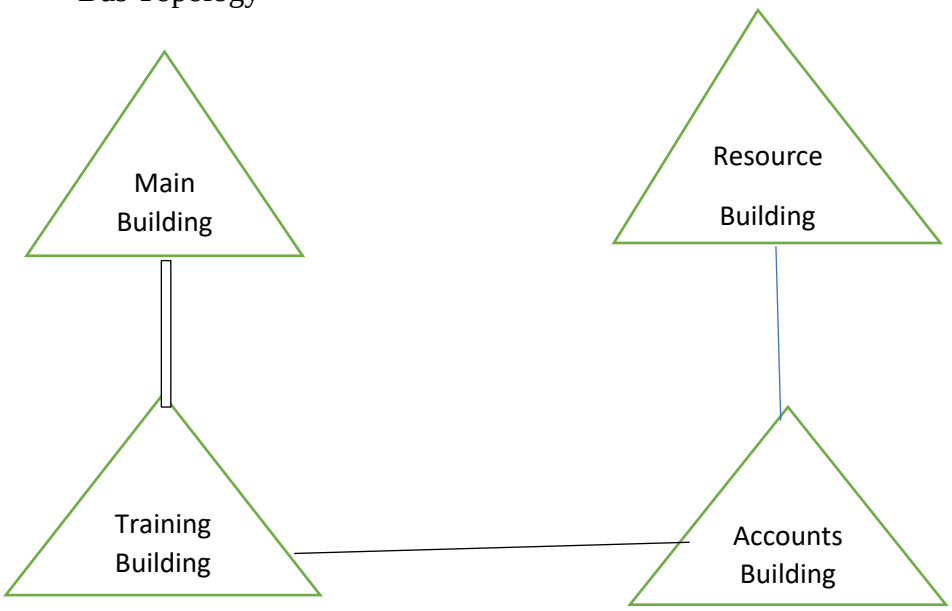
Ans: (a) @@2202 puC’W 02T ## 1 marks for each correct row
(b) Ans: dict_items([('name', 'Aman'), ('age', 27), ('address', 'Delhi')])

(1 mark for the correct answer)</td><td>1marks for each correct row</td></tr>
<tr><td>25</td><td>Differentiate between WHERE and HAVING clause.
Ans : WHERE clause is used to select particular rows that satisfy a condition whereas HAVING is used in connection with aggregate function
for e.g > SELECT * FROM STUDENT GROUP BY STREAM HAVING MAKRS>75 ;
This command will display all student grouped together on the basis of stream only for those students have scored marks more than 75.</td><td>1marks for definition and 1 for example</td></tr>
<tr><td>26</td><td>A.
<table><tr><td>Name</td><td>gname</td></tr><tr><td>Rohan</td><td>Football</td></tr><tr><td>Rohan</td><td>Lawn Tennis</td></tr><tr><td>Jaya</td><td>Football</td></tr><tr><td>Jaya</td><td>Lawn Tennis</td></tr><tr><td>Teena</td><td>Football</td></tr><tr><td>Teena</td><td>Lawn Tennis</td></tr></table>
B. i) 1200000
ii) 4500
iii) 2
iv) All given table data will display.</td><td></td></tr>
<tr><td>27</td><td>def countH( ):
f = open(“Para.txt”, “r”)
lines = 0
l = f.readlines( )
for i in l:
if[0] ==’H’:
lines+=1
print(“No of lines are”, lines)
f.close( )
or
def countmy( ):
f = open(“DATA.txt”, “r”)
count= 0
x = f.read( )
word = x.split( )
for i in word:
if(i== “my”)</td><td></td></tr>
</table>

	count = count + 1 print("my occurs", count, "Times") f.close( )	
28.	a) i) **Name** Motherboard Hard Disk LCD ii**) Area** **Count** CP 2 GK II 1 Nehru Place 2 iii) **Count(Distinct Area)** 3 iv) **Name** **Price** Motherboard 12000 Motherboard 13000 b) create database employee;	

29.	def is_even_num(l):
	enum = [ ]
	for n in l:
	if n % 2 == 0:
	enum.append(n)
	return enum
	print(is_even_num([1,2,3,4,5,6,7,8,9])	

30.	def Push(stk, item):
	stk.append(item)
	top = len(stk) -1
	
	def Display(stk):
	if isEmpty(stk):
	print("Stack Empty")
	else:
	top = len(stk) – 1
	print(stk[top],"top"]
	for a in range (top -1, -l,-1):
	print(stk[a])
	
	or
	
	def MakePush(Package):
	a = int(input("Enter package title:"))
	Package.append(a)
	def MakePop(Package):
	if (Package===[]):
	print("Stack Empty")
	else:
		3

	print("Deleted element:", Package.pop( ))	
	SECTION D	
31	i) Bus Topology  ii) Training Building as its hosts the most computers. iii) Repeater between training and accounts building as they have 110 m of distance. Hub / Switch – In all the building . more than one computers are there iv)Optical Fibre v)FTP (File Transfer Proctocols).	
32.	a) 3 3 3 2 b) i)mycon ii)db.cursor() iii)db.close() or a) SCHOOLbbbbCOM b) i)statement1 – import mysql.connector ii) cursor = db.cursor() **#statement2** **iii)** cursor.execute(sql) **#statement3**	

33.	Import csv
	Row = ['2','Akshat chuhan', 'commerce','98']
	def readscv( ):
	with open("student.csv", 'r') as f:
	data = csv.reader(f)
	for row in data:
	print(row)	

	def writecsv():
	with open("student.csv", 'w', newline='') as fobj;
	csv_w=csv.writer(fobj), deliniter=',')
	
	csv_w.writerow(row)
	or
	difference between text and csv file (1marks)
	def addCsvFile(Username, Password):
	f= open('user.csv','a')
	newFileWriter=csv.writer(f)
	newFileWriter.writerow([username,password])
	f.close( )
	def readCvsFile():
	with open('user.csv','r') as newFile:
	for row in newFileReader:
	print(row[0],row[1])
	newFile.close( )	

	SECTION E	

34.	a. primary key – ItemNo
	b. Degree – 4, Cardinality – 6
	c. i) insert into STORE values(2010,"Note Book",25,50);
	ii)update store set quantity = quantity + 10;
	or
	c. i) delete * from STORE WHERE ItemNo=2005;
	ii) alter table STORE add(price float(5));	

35.	i)statement1 – pickle ii)statement2 – with open("Stu.dat","wb" as fh: iii)statement3 - pickle.dump(Stu1,fh) iv) Rstu= pickle.load(fin)	

Class: XII Session: 2022-23

Computer Science (083)

Sample Question Paper (Theory)

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 choice is given in Q35 against part c only.

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

SECTION A		
1	In a Python program, a control structure: (A) Defines program-specific data structre (B) Directs the order of Execution of statements in the program (C) Dictates what happens before the program starts and after it terminates (D) None of above	1
2	Find the invalid Identifier from the following: (A) Myname (B) 1Myname (C) My_name (D) Myname2	1
3	Which of the following is invalid method for fetching the records from database within Python ? (A) fetchone() (B) fetchmany() (C) fetchall() (D) fetchmulti()	1
4	What is the default EOL Character in python ? (A) \n (B) \t (C) \l (D) \h	1
5	This method is used to load (unpickling) data from binary file (A) load() (B) dump() (C) seek() (D) tell()	1
6	Identify the valid arithmetic operator in python (A) ? (B) < (C) ** (D) and	1

7	Given the following dictionaries dict_exam={"Exam":"AISSCE", "Year":2023} dict_result={"Total":500, "Pass_Marks":165} Which statement will merge the contents of both dictionaries? a. dict_exam.update(dict_result) b. dict_exam + dict_result c. dict_exam.add(dict_result) d. dict_exam.merge(dict_result)	1
8	Consider the given expression False, True, NOT, OR, True, False,AND,OR Which of the following is the correct output if expression is evaluated? (A) True (B) False (C) None (D) Null	1
9	Give the output of the following x=3 x+=x-x print(x) (A) 3 (B) 0 (C) 2 (D) 1	1
10	Bluetooth is an example of (A) LAN (B) WAN (C) PAN (D) Virtual private network	1
11	State true or false " Immutable data type are those that can never change their values "	1

12	Which of the following statement(s) would give an error after executing the following code?
	x=50 # Statement 1
	Def func(x) # Statement 2
	x=2 # Statement 3
	func(x) # Statement 4
	print(x) # Statement 5
	
	(A) Statement 1 (B) Statement 3 & 4 (C) statement 4 (D) Statement 2
		1

13	which of the following is the correct output for executing the following python statement? print(5 + 3**2 / 2) (A) 32 (B) 8.0 (C) 9.5 (D) 32.0	1
14	Which topology is based on a central node which acts as a hub ? (A) Bus topology (B) Star topology (C) Tree topology (D) Hybrid Topology	1
15	To establish a connection between Python and SQL database, what of the following statement is connecting database server? (A) importMySQLdb (B) MySQLdb.connect (C) db.cursor (D) None of the above	1
16	_____function place the pointer at the specified position of the file pointer by in an opening file. (A) seek() b) tell() c) read() d) load()	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 a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).	1
18	Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file. Reason (R): The information is organized with one record on each line and each field is separated by comma.	1
	SECTION B	
19	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 Lower and Upper. import random AR=[20,30,40,50,60,70]; Lower=random.randint(1,3) Upper=random.randint(2,4) for K in range(Lower, Upper+1): print (AR[K],end="#") (A) 10#40#70# (B) 30#40#50# (C) 50#60#70# (D) 40#50#70#	2
20	(a) Write the full form of the following i) ARPANET ii) WiMax (b) Name the different guided media for data transmission.	2
21	Predict the output of the following code def Alter(M,N=50): M=M+N N=M-N print(M,"@",N) return(M) A=200 B=100 A=Alter(A,B) print(A,"#",B) B=Alter(B) print(A,"@",B)	2
22	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. 30=Value for VAL in range(0,Value) If val%4=0: print (VAL*4) Else val%5==0: print (VAL+3)	2

23 What are the different switching techniques in networking ? 2

24 (a) Given is a Python string declaration: 2
title="## ICC CRICKET T20 W'Cup 2022@@"
Write the output of: print(title[::-1])

(b) Write the output of the code given below:
```
my_dict = {"name": "Aman", "age": 26}
my_dict['age'] = 27
my_dict['address'] = "Delhi"
print(my_dict.items())
```

25 Differentiate between WHERE and HAVING clause. 2

SECTION C

26. a) Consider the following tables – student and games: 1 + 2

Table : student

Rollno	Name
1	Rohan
2	Jaya
3	Teena

table : games

gameno	gname
10	Football
11	Lawn Tennis

What will be the output of following statement ?

Select Name, gname from student, games ;

b) write the output of queries i) to iv) based on the table, LOANS given below:

Table : LOANS

AccNo	Cust_Name	Loan_Amount	Instalments	Int_Rate	Start_Date	Inter
1	R.K.Gupta	300000	36	12.00	2009-07-19	1200
2	S.P.Sharma	500000	48	10.00	2008-03-22	1800
3	K.P. Jain	300000	36	NULL	2007-03-08	1600
4	M.P.Yadav	800000	60	10.00	2008-12-06	2250
5	S.P.Sinha	200000	36	12.50	2010-01-03	4500
6	P.Sharma	700000	60	12.50	2008-06-05	3500
7	K.S. Dhall	500000	48	NULL	2008-03-05	3800

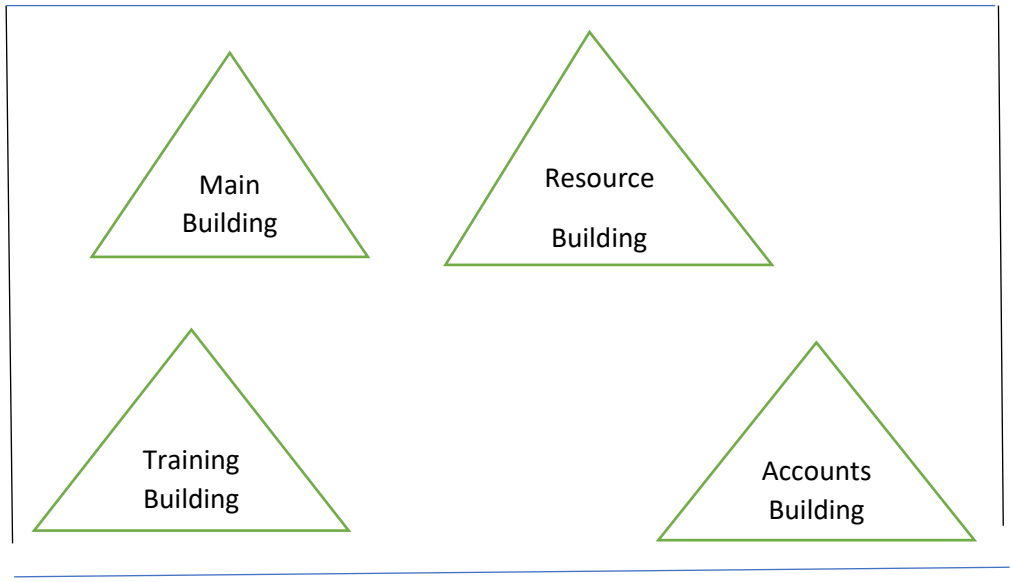
i) Select sum(Loan_Amount) from LOANS where Int_Rate > 10 ;
ii) Select max(Interest) from LOANS;
iii) Select count(*) from LOANS where Int_Rate is NULL;
iv) Select * from LONAS GROUP BY Interest HAVING Instalments >= 10;

27. Write a user – defined function countH() in Python that displays the number of lines starting with 'H' in the file 'Para.txt". Example , if the file contains: 3
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.

	Output: The line count should be 2.	
	OR Write a function countmy() in Python to read the text file "DATA.TXT" and count the number of times "my" occurs in the file. For example , if the file "DATA.TXT" contains – "This is my website. I have displayed my preference in the CHOICE section." The countmy( ) function should display the output as: "my occurs 2 times"	

28.	Write the output of the SQL queries i) to iv) based on the relations SHOP and ACCESSORIES given below:
	
	Table: SHOP
	
	Id | **SName** | **Area**
	S01 | ABC Computronics | CP
	S02 | All Infotech Media | GK II
	S03 | Tech Shopee | CP
	S04 | Geek Tenco Soft | Nehru Place
	S05 | Hitech Tech Store | Nehru Place
	
	Table : ACCESSORIES
	
	No | Name | Price | Id
	A01 | Motherboard | 12000 | S01
	A02 | Hard Disk | 5000 | S01
	A03 | Keyboard | 500 | S02
	A04 | Mouse | 300 | S01
	A05 | Motherboard | 13000 | S02
	A06 | Keyboard | 400 | S03
	A07 | LCD | 6000 | S04
	T08 | LCD | 5500 | S05
	T09 | Mouse | 350 | S05
	T010 | Hard Disk | 450 | S03
	
	i) Select distinct Name from ACCESSORIES where Price > = 5000;
	ii) Select Area, count(*) from SHOP group by Area;
	iii) Select count(distinct Area) from SHOP;
	iv) Select A.Name , A.Price from ACCESSORIES A, SHOP S where A.Id =S.Id and Price >=12000;
	
	b) write the command to create a database employee.
		2+1

29.	Write a python function is_even_num(l), where l is the list of elements passed as arguments to the function. The function return even numbers from a given list: Sample List : [1,2,3,4,5,6,7,8,9] Expected Result:[2,4,6,8]	3

30.	Write a program to implement a Stack for these book-details(book no, book name). That is , now each item node of the stack contains two types of information – a book no, and its name. Just implement PUSH and Display Operations create a Push() and Display() functions: OR Write a function in Python MakePush(Package) and MakePop(Package) to add a new Package and delete a Package from a List of package description, considering them to act as puch and pop operations of the Stack data structure.	3
	SECTION D	
31.	"Vidya for All" is an educational NGO. It is setting up its new campus at Jaipur for its web-based activities. The campus has four building as shown in diagram below:  Center to Center distance between various building as per architectural drawings (in meters is as follows: Main Building to Resource Building — 120m Main Building to Training Building — 40m Main Building to Accounts building — 135m Resource Building to Training Building — 125m Resource Building to Account Building — 45m Training building to Account Building — 110m Expected number of computers in each building is as follows: Main Building — 15 Resource Building — 25 Training Building — 250 Accounts Building — 10 i)Suggest the layout of connection between the building. ii)Suggest the most suitable (i.e. building) to house the server of this NGO. Also provide a suitable reason for your suggestion. iii)Suggest the placement of the following devices with justification:	5

	a)Repeater b)Hub / Switch iv) The NGO is planning to connect its International office situated in delhi . which out of the following wired communication links will you suggest for a very high speed connectivity ? a) Telephone Analog line b) Optical Fiber iii)Ethernet Cable v)Suggest the protocol to be used to update website of their organization from Training Building.	

32.	a) Predict the output of the following code fragment ?
	def check(n1=1, n2=2):
	n1=n1+n2
	n2+=1
	print(n1,n2)
	check ( )
	check(2,1)
	
	b.) study the database 'company' that has a table 'Emp' that stores IDs of employees. Code contain the connectivity to retrieve data, one record at a time, for employees with IDs less than 10.
	Write the missing statements
	i)Statement1 .
	ii)Statement2
	iii)Statement3
	
	import MYSQLdb as mycon
	try:
	db=_____.connect(host="localhost", user ="root", passwd=" ",
	database ="company") **##write missing part in statement1**
	cursor = _____**#missing Statement2**
	sql="select * from Emp where id < 10")
	number_of_rows=cursor.execute(sql)
	print(cursor.fetchone())
	db._____ **##missing statement3**
	except mycon.DataError as e:
	print("DataError")
	print(e)
	
	OR
	a)Predict the output of the following code given below:
	def fun(s):
	k=len(s)
	m=" "
	for i in range(0,k):
	if(s[i].isupper()):
	m=m+s[i].lower( )
	elif s[i].isalpha( ):
	m=m+s[i].upper( )
	else:
	m = m + 'bb'
	print(m)
	fun('school2@com')
		2 + 3

b)Consider the following code which is doing following ,
updating the records of employees by increasing the salary by Rs.1000 of all those employees who are getting less than Rs. 80000.
Write the following missing statements:
i)statement1
ii)statement2
iii)statement3

```
import _______.connector     #statement1
db1=mysql.connector.connect(host="localhost", user="root",password="",
databse="company")
cursor = _________________ #statement2
sql="update emp set salary = salary + 1000 where salary <80000;"

try:
  cursor._________________ #statement3
  bd1.commit( )
except:
 db1.rollback( )

 bd1.close( )
```

33. Write a user defined function to perform read and write operations onto a 'student.csv' file having fields roll number, name, stream and marks. — 5

Or

Write the difference between text and csv file ?
Ranjan kumar of class 12 want to write a program on csv file "user.csv" he wants to store user id and password in user.csv files.
Example he want to write following data where first is user id and second is password in the file :
"Arjun", "123@456"
"Arunima", "123#453"
"Shyam", "12&1234"

Create following functions:
addCsvFile( ):- which will add user id and password in "user.csv" file.
defReadCsvFile( ):- which will read the user id and password form "user.csv"file.

SECTION E

34. Consider the following table STORE: — 1+1+2

Table : STORE

ItemNo	ItemName	Scode	Qunatity
2005	Sharpener Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Get Pen Premium	21	150
2006	Get Pen Classic	22	220
2001	Eraser Small	22	220
2004	Eraser Big	22	110

Based on the above STOR Table and data in it answer the following questions:

a) Identify the attribute best suitable for Primary key.

	b) Write the degree and cardinality of the table STORE. c) Write the following statement : i) Insert the following data in the table. ItemNo=2010, ItemName="Note Book" , Scode=25, quantity = 50 ii) Increase the quantity of all the item by 10. Or c) write the statement to: i) Delete the record from store table where item No. 2005. ii) Add column price in the above store table with datatype as float.	

35.	Vishal has been given following incomplete code which takes a students details (rollnumber, name and marks) and writes into binary file stu.dat using pickling.
	
	import _____ # statement 1
	sturno = int(input("Enter the rollno"))
	stuname= input("Enter the name"))
	stumarks=float(input("Enter marks"))
	stu1={"RollNo":sturno, "Name":stuname, "Marks":stumarks}
	with _____ as fh: #statement 2
	pickle.dump(_____) # statement 3
	with open("Stu.dat","rb") as fin:
	_____ # statement 4
	
	Print(Rstu)
	if Rstu["Marks"] >= 85:
	print("Eligible for merit certificate")
	else:
	print("Not Eligible for merit certificate")
		1+1+1+1