ROLL NUMBER				

CODE NUMBER	083/1/1
SET NUMBER	1

INDIAN SCHOOL MUSCAT
FIRST PRE BOARD EXAMINATION 2023
COMPUTER SCIENCE(083)

CLASS : XII
DATE: 30.11.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 70

GENERAL INSTRUCTIONS:

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

Ques. No.	Question	Marks

SECTION A

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

2. All aggregate functions except _____ ignore null values in their input collection. 1
(a) Count(attribute) (b) Count(*) (c) Avg( ) (d) Sum( )

3. What will be the output of the following statement: 1
print(5+10*1*2**4-4//4)
(a) 164 (b) 155 (c) 156 (d) 145

4. What will be the output of the following code? 1
print("ComputerProgram".split("er",2))

(a) ['Computer', 'Program'] (b) ['Comput', 'Program']
(b) ['Comput', 'erProgram'] (d) ['Comput', 'er', 'Program']

5. Which of the following is a DML command? 1
(a) CREATE (b) ALTER (c) INSERT (d) DROP

6. Name the protocol that is used to send emails. 1
(a) SMTP (b) IP (c) TCP (d) FTP

7. The command to merge the dictionary Book with Library would be: 1
(a) Book+Library (b) Book.add(Library)
(c) Book.update(Library) (d) Book.merge(Library)

8. Consider the statements given below and then choose the correct output from the given options: 1
```
SS="PYTHON"
print( SS[:3:])
```
(a) THON (b) HON (c) PYTH (d) PYT

9. Consider a tuple tup1 = (10, 15, 25, 30). Identify the statement that will result in an error. 1
(a) print(tup1[2]) (b) tup1[2] = 20
(c) print(min(tup1)) (d) print(len(tup1))

10. Which is NOT the possible output for the following Python code? 1
```
import random
flowers=["Rose","Jasmine","Sunflower","Lily"]
for I in range(random.randint(0,2)):
  print(flowers[I],'*',end=" ")
```
(a)Rose*Jasmine* (b) Rose*Jasmine*Sunflower*
(c) Rose* (d) No Output

11. Which of these is not an example of unguided media? 1
(a) Optical Fibre Cable (b) Radio wave (c) Bluetooth (d) Satellite

12. Consider the code given below: 1
Which of the following statement should be given in the blank for #Missing Statement, if the output produced is 240?
```
y = 200
def check(x) :
    _____ # missing statement
  y = y + x * 2
check(20)
print(y)
```
(a) global x=100 (b) global x (c) global y (d) global y=10

13. State whether the following statement is True or False: 1
NameError is raised when a built-in method or operation receives an argument that has the right data type but mismatched or inappropriate values.

14. Fill in the blank: 1
_____clause is used to remove duplicate values of the table.
(a) DESCRIBE (b) DISTINCT (c) UNIQUE (d) NULL

15. Fill in the blank: 1
_____ is a device that connects dissimilar networks.
(a) Router (b) Repeater (c) Modem (d) Gateway

16. To move a file pointer f, 10 bytes ahead from the current position of file, function used is - 1
(a) f.seek(10) (b) f.seek(10,0) (c) f.seek(10,1) (d) f.seek(10,2)

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):- Keyword arguments are related to function calls. 1
Reasoning(R):- When you use keyword arguments in function call, the caller identifies the arguments by the parameter name.

18. Assertion (A):- To use a function from a particular module, we need to import the module. 1
Reasoning (R):- import statement can be written anywhere in the program, before using a function from that module.

SECTION B

19. (i) Expand the following terms: 2
PPP, HTTP
(ii) Give one difference between XML and HTML.

OR

(i) Give one advantage and one disadvantage of bus topology.
(ii) Explain packet switching.

20. The code given below accepts a number as an argument and returns sum of all digits of a number. Observe the following code carefully and rewrite it after removing **all syntax and logical errors**. Underline all the corrections made. 2

```
Def SumOfDigits(num):
  s=0
  while num>0
    d = = num % 10
    s=s+d
    num //=10
    return s
print(SumOfDigits(1234))
```

21. Write a function VOWELS(STR) that takes string STR as an argument and returns the number of vowels in the string. 2

OR

Write a function countCity(CITY) in Python, that takes the dictionary, CITY as an argument and displays the names (in uppercase) of the cities whose names are longer than 7 characters.

For example, Consider the following dictionary
CITY={1:"Sydney",2:"Tokyo",3:"Pinkcity",4:"Beijing",5:"Suncity"}
The output should be:
PINKCITY

22. What will be the Output for the following code? 2

```
Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
del Language[4]
Language.remove("JAVA")
Language.pop(3)
print(Language)
```

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: 2
(i) To insert an element 500 at the third position, in the list named, **MYLIST**.
(ii) To count number of characters in a string named, **STR1** including spaces.

OR

A list named **Lstdata** stores list of numbers. Write the Python command to import the required module and (using built-in function) to display the middle value of numeric data in a list Lstdata.

24. Ms. Shalini has just created a table named **CAR** containing columns CARID, Model, Maker and Price. 2
Write SQL commands to :
(i) Add a column FUELTYPE to the table with datatype as varchar with 20 characters.
(ii) To display the structure of the table CAR.

OR

Kamal has created a table named **WORKER**. The attributes of Worker are as follows:
WORKER_ID – CHARACTER OF SIZE 3
NAME – CHARACTER OF SIZE 10
SALARY – NUMERIC
Write SQL commands to :
(i) Kamal wants to increase the size of the NAME column from 10 to 20 characters. Write an appropriate command to change the size.
(ii) Delete the table WORKER.

25. Write the output of the code given below: 2

```
p=200
def callme(q,r=2):
    global p
    p=r+q**2
    print(p, end= '#')
a=5
b=10
callme(a,b)
callme(r=10,q=3)
```

SECTION C

26. What output will be generated when the following Python code is executed? 3

```
s='criCkeT23'
n = len(s)
m=''
for i in range(0, n):
    if (s[i] >= 'a' and s[i] <= 'm'):
        m = m + s[i].upper()
    elif (s[i] >= 'n' and s[i] <= 'z'):
        m = m + s[i-1]
    else:
        m = m + '#'
print(m)
```

27. Write the output of the queries (i) to (iii) based on the table, PATIENT given below: 3

Table: PATIENT

PNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
P101	Kavita	52	Surgery	800	F
P102	Ravi	35	ENT	200	M
P103	Sunil	45	Cardiology	250	M
P104	Shikha	40	ENT	300	F
P105	Rakhi	35	ENT	350	F
P106	Varun	30	Surgery	500	M

(i) SELECT DEPARTMENT, COUNT(*) FROM PATIENT
GROUP BY DEPARTMENT HAVING COUNT (*) >2 ;

(ii) SELECT SUM (CHARGES) FROM PATIENT WHERE GENDER = "M";

(iii) SELECT PNO, NAME FROM PATIENT
WHERE DEPARTMENT IN("Cardiology", "Surgery") ;

28. Write a function, COUNT_TLINES( ) in python to read a text file "**Report.txt**", that counts and displays the number of lines which are starting with '**T**' present in the text file. 3

OR

Write a function, COUNT_WORDS( ) in Python that counts and displays the number of "**DIET**" word present in the text file "**Health.txt**".

29. **Table: GRADUATE** 3

SNO	NAME	STIPEND
1	KARAN	400
2	RAJ	500
3	VARUN	1000
4	NISHA	800

Based on the data given above answer the following questions:

(i) If 3 columns are added and 1 row is deleted from the table GRADUATE, what will be the new degree and cardinality of the above table?

(ii) Increase the STIPEND by 20% whose NAME starts with 'R'.

(iii) Insert the following record into the table
SNO - 5, NAME - SHYAM, STIPEND - 700

30. A list named, CList contains following record of customer as list elements: 3
[Customer_name, RoomType, Advance]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named 'Hotel' :

(i) Push_Cust(CList) – It takes the nested list as an argument and pushes a list object containing name and advance of those customers who are staying in 'Delux' Room Type.

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

For example:
If the nested list contains the following data:
CList=[["Sunil","Delux",2000],["Rahul","Standard",1000],["Jerry","Delux",1500]]

The stack should contain:
['Jerry', 1500]
['Sunil', 2000]

The output should be:
['Jerry', 1500]
['Sunil', 2000]
Stack Empty

SECTION D

31. Write queries (i) to (iv) based on the tables **TRADERS** and **ITEMS** given below: 4

Table: TRADERS

TCODE	TNAME	CITY
T01	ELECTRONICS SALES	MUMBAI
T02	BUSY STORE CORP	DELHI
T03	DISP HOUSE INC	CHENNAI

Table: ITEMS

CODE	INAME	QTY	PRICE	COMPANY	TCODE
1001	Digital Pad	120	11000	XENITA	T01
1006	LED Screen	70	38000	SANTORA	T02
1004	CAR GPS	60	2150	GEOKNOW	T01
1003	Digital Cam 12 X	160	8000	DIGICLICK	T02
1005	PenDrive 32GB	600	1200	STOREHOME	T03

(i) Display name, price and company of all the items in descending order of company.

(ii) Display item name and price of all those items, whose price is in the range of 5000 and 15000. (both values inclusive).

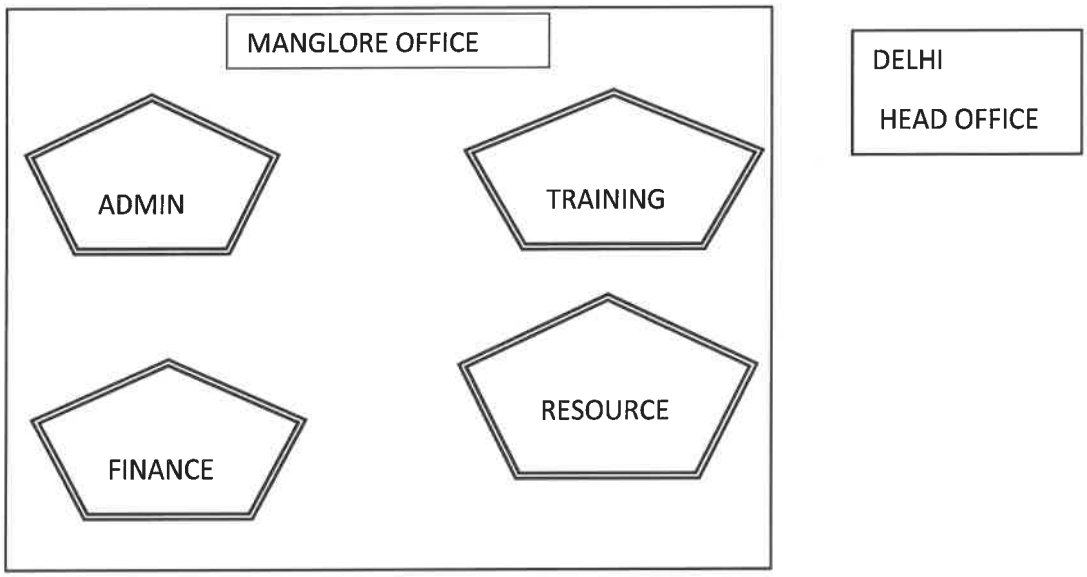
(iii) Display Item name , company and Trader name from tables ITEMS and TRADERS.

(iv) Display the number of items, which are traded by each trader.
The expected output of this query should be:
T01 2
T03 1
T02 2

32. Write a Program in Python that defines and calls the following user defined functions: 4
(i) addrec( ) – To accept and add data of an item to a CSV file '**item.csv**'. Each record consists of a list with field elements as icode, description and price to store item code, item description and price respectively.
(ii) countrec( ) –To count and display the number of items with price less than 1000.

SECTION E

33. Bhartiya Connectivity Association located in Delhi has set up its new centre at Mangalore. 5
The Manglore office has 4 buildings as shown in the diagram below:



Centre to centre distances between various buildings is as follows:

ADMIN to FINANCE	50 m
FINANCE to TRAINING	150 m
TRAINING to RESOURCE	25 m
ADMIN to RESOURCE	170 m
FINANCE to RESOURCE	125 m
ADMIN to TRAINING	90 m
Manglore to Delhi Head office	2233Km

Number of computers in each building is as follows:

ADMIN Building	25
FINANCE Building	50
TRAINING Building	150
RESOURCE Building	10

(i) Suggest and draw the cable layout to economically connect various buildings within the Mangalore Centre for connecting the digital devices.

(ii) Suggest the most suitable place (i.e. building) to house the SERVER in Manglore office with a suitable reason.

(iii) Suggest the placement of the following devices in each building at MANGLORE office with justification:
- Repeater
- Switch

(iv) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in MANGLORE?

(v) Suggest the type of network (out of LAN, MAN and WAN) to connect Training Department in Manglore to Delhi Head office with suitable reason.

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

(ii) Consider a file, '**Movie.dat**', containing records of the following structure:
[Movieid, Mname and Mtype]
Write a function, copyData( ), that reads contents from the file 'Movie.dat' and copies the records with Mtype as "Comedy" to the file named '**Cmovie.dat**'. The function should return the total number of records copied to the file 'Cmovie.dat'.

OR

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

(ii) A binary file "**Account.dat**" has the following structure:
[Acct_Number, Acct_Type, AcctHolderName, Balance]
Write a function CountBalanceAbove(BAL) that accepts BAL as parameter in Python that would read contents of the binary file "Account.dat" and display the details of those accounts in which Balance is more than BAL. Also display number of such accounts.

35. (i) Define Natural join. 1+4=5

(ii) Vivek wants to write a program in Python to insert the following record in the table named **BOOKS** in MYSQL database, **LIBRARY**:
- bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

The values of fields bookid, bookname and bookprice has to be accepted from the user. Help Vivek to write the program in Python.

OR

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

(ii) Ravi has created a table named **BOOKS** in MYSQL database, **LIBRARY**:

- Bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

Ravi, now wants to display the records of books whose price is less than 2000. Help Ravi to write the program in Python.

******END OF THE QUESTION PAPER******

ROLL NUMBER					

CODE NUMBER	083/1/2
SET NUMBER	2

INDIAN SCHOOL MUSCAT
FIRST PRE BOARD EXAMINATION 2023
COMPUTER SCIENCE(083)

CLASS : XII
DATE: 30.11.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 70

GENERAL INSTRUCTIONS:

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

Ques. No.	Question	Marks

SECTION A

1. State True or False: 1
"Variable declaration is implicit in Python."

2. Which of the following is a DDL command? 1
(a) SELECT (b) ALTER (c) INSERT (d) UPDATE

3. What will be the output of the following statement: 1
print(10 - 2**1**3 + 16 // 3 - 17 % 3)
(a) 14 (b) 5 (c) 17 (d) 11

4. What will be the output of the following code? 1
print("ComputerScience".split("er",2))

(a) ['Computer', 'Science'] (b) ['Comput', 'Science']
(c) ['Comput', 'erScience'] (d) ['Comput', 'er', 'Science']

5. All aggregate functions except _____ ignore null values in their input collection. 1
(a) Count(attribute) (b) Count(*) (c) Avg( ) (d) Sum( )

6. Which of these is not an example of unguided media? 1
(a) Optical Fibre Cable (b) Radio wave (c) Bluetooth (d) Satellite

7. The command to merge the dictionary Book with Library would be: 1
(a) Book+Library (b) Book.add(Library)
(c) Book.update(Library) (d) Book.merge(Library)

8. Consider the statements given below and then choose the correct output from the given options: 1

```
S="DIGITAL#INDIA"
print(S[-4:1:-2])
```

(a) N#AI (b) TG (c) N#AII (d) No Output

9. Consider a tuple tup1 = (10, 15, 25, 30). Identify the statement that will result in an error. 1
(a) print(tup1[2]) (b) tup1[2] = 20
(c) print(min(tup1)) (d) print(len(tup1))

10. Which is NOT the possible output for the following Python code? 1

```
import random
flowers=["Rose","Jasmine","Sunflower","Lily"]
for I in range(random.randint(0,2)):
  print(flowers[I],'*',end=" ")
```

(a)Rose*Jasmine* (b) Rose*Jasmine*Sunflower*
(c) Rose* (d) No Output

11. We can upload a file to a web server using a protocol called _____. 1
(a) FPT (b) IP (c) TCP (d) FTP

12. Consider the code given below: 1
Which of the following statement should be given in the blank for #Missing Statement, if the output produced is 240?

```
y = 200
def check(x) :
  _____ # missing statement
  y = y + x * 2
check(20)
print(y)
```

(a) global x=100 (b) global x (c) global y (d) global y=10

13. State whether the following statement is True or False: 1
The statements inside the finally block are always executed regardless of whether an exception has occurred in the try block or not.

14. Fill in the blank: 1
_____clause is used to remove duplicate values of the table.
(a) DESCRIBE (b) DISTINCT (c) UNIQUE (d) NULL

15. Fill in the blank: 1

_____ is a device that connects dissimilar networks.

(a) Router (b) Repeater (c) Modem (d) Gateway

16. To move a file pointer f, 10 bytes ahead from the current position of file, function used is - 1

(a) f.seek(10) (b) f.seek(10,0) (c) f.seek(10,1) (d) f.seek(10,2)

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):- Keyword arguments are related to function calls. 1

Reasoning(R):- When you use keyword arguments in function call, the caller identifies the arguments by the parameter name.

18. Assertion (A):- To use a function from a particular module, we need to import the module. 1

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

SECTION B

19. (i) Expand the following terms: 2

SMTP, VoIP

(ii) Give one difference between XML and HTML.

OR

(i) Give one advantage and one disadvantage of star topology.

(ii) Explain circuit switching.

20. The code given below accepts a number as an argument and returns sum of all digits of a number. Observe the following code carefully and rewrite it after removing **all syntax and logical errors**. Underline all the corrections made. 2

```
Def SumOfDigits(num):
  s=0
  while num>0
    d = = num % 10
    s=s+d
    num //=10
    return s
print(SumOfDigits(1234))
```

21. Write a function VOWELS(STR) that takes string STR as an argument and returns the number of vowels in the string. 2

OR

Write a function countCity(CITY) in Python, that takes the dictionary, CITY as an argument and displays the names (in uppercase) of the cities whose names are longer than 7 characters.

For example, Consider the following dictionary
CITY={1:"Sydney",2:"Tokyo",3:"Pinkcity",4:"Beijing",5:"Suncity"}
The output should be:
PINKCITY

22. What will be the Output for the following code? 2

```
Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
del Language[4]
Language.remove("JAVA")
Language.pop(3)
print(Language)
```

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: 2
(i) To insert an element 300 at the fifth position, in the list named, **LST1**.
(ii) To count number of characters in a string named, **STR1** including spaces.

OR

A list named **Lstdata** stores list of numbers. Write the Python command to import the required module and (using built-in function) to display the middle value of numeric data in a list Lstdata.

24. Ms. Shalini has just created a table named **CAR** containing columns CARID, Model, Maker and Price. 2
Write SQL commands to :
(i) Add a column FUELTYPE to the table with datatype as varchar with 20 characters.
(ii) To display the structure of the table CAR.

OR

Kamal has created a table named **WORKER**. The attributes of Worker are as follows:
WORKER_ID – CHARACTER OF SIZE 3
NAME – CHARACTER OF SIZE 10
SALARY – NUMERIC
Write SQL commands to :
(i) Kamal wants to increase the size of the NAME column from 10 to 20 characters. Write an appropriate command to change the size.
(ii) Delete the table WORKER.

25. Write the output of the code given below: 2

```
p=100
def callme(q,r=2):
    global p
    p=r+q**2
    print(p, end= '#')
a=20
b=5
callme(a,b)
callme(r=10,q=1)
```

SECTION C

26. What output will be generated when the following Python code is executed? 3

```
Msg1="WeLcOME"
Msg2="GUeSTs"
Msg3=""
for I in range(0,len(Msg2)+1):
   if Msg1[I]>="A" and Msg1[I]<="M":
      Msg3=Msg3+Msg1[I]
   elif Msg1[I]>="N" and Msg1[I]<="Z":
      Msg3=Msg3+Msg2[I]
   else:
      Msg3=Msg3+"*"
print(Msg3)
```

27. Write the output of the queries (i) to (iii) based on the table, PATIENT given below: 3

Table: PATIENT

PNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
P101	Kavita	52	Surgery	800	F
P102	Ravi	35	ENT	200	M
P103	Sunil	45	Cardiology	250	M
P104	Shikha	40	ENT	300	F
P105	Rakhi	35	ENT	350	F
P106	Varun	30	Surgery	500	M

(i) SELECT DEPARTMENT, COUNT(*) FROM PATIENT
GROUP BY DEPARTMENT HAVING COUNT (*) >2 ;

(ii) SELECT SUM (CHARGES) FROM PATIENT WHERE GENDER = "F";

(iii) SELECT PNO, NAME FROM PATIENT
WHERE DEPARTMENT IN("Cardiology", "Surgery") ;

28. Write a function, DISPLAYLINES( ) in Python to read a text file '**Story.txt**' and displays those lines which are not starting with an alphabet 'S'. 3

OR

Write a function, Count_Dwords( ) in Python that counts and displays the number of words ending with a digit in the text file named "**Message.txt**".

29. **Table: GRADUATE** 3

SNO	NAME	STIPEND
1	KARAN	400
2	RAJ	500
3	VARUN	1000
4	NISHA	800

Based on the data given above answer the following questions:

(i) If 1 column is added and 2 rows are deleted from the table GRADUATE, what will be the new degree and cardinality of the above table?

(ii) Increase the STIPEND by 10% whose NAME ends with 'N'.

(iii) Insert the following record into the table
SNO - 5, NAME - SHYAM, STIPEND - 700

30. A list named, CList contains following record of customer as list elements: 3
[Customer_name, RoomType, Advance]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named 'Hotel' :

(i) Push_Cust(CList) – It takes the nested list as an argument and pushes a list object containing name and advance of those customers who are staying in 'Delux' Room Type.

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

For example:
If the nested list contains the following data:
CList=[["Sunil","Delux",2000],["Rahul","Standard",1000],["Jerry","Delux",1500]]

The stack should contain:
['Jerry', 1500]
['Sunil', 2000]

The output should be:
['Jerry', 1500]
['Sunil', 2000]
Stack Empty

SECTION D

31. Write queries (i) to (iv) based on the tables **TRADERS** and **ITEMS** given below: 4

Table: TRADERS

TCODE	TNAME	CITY
T01	ELECTRONICS SALES	MUMBAI
T02	BUSY STORE CORP	DELHI
T03	DISP HOUSE INC	CHENNAI

Table: ITEMS

CODE	INAME	QTY	PRICE	COMPANY	TCODE
1001	Digital Pad	120	11000	XENITA	T01
1006	LED Screen	70	38000	SANTORA	T02
1004	CAR GPS	60	2150	GEOKNOW	T01
1003	Digital Cam 12 X	160	8000	DIGICLICK	T02
1005	PenDrive 32GB	600	1200	STOREHOME	T03

(i) Display name, price and company of all the items in descending order of item names.

(ii) Display item name and price of all those items, whose price is in the range of 10000 and 22000. (both values inclusive).

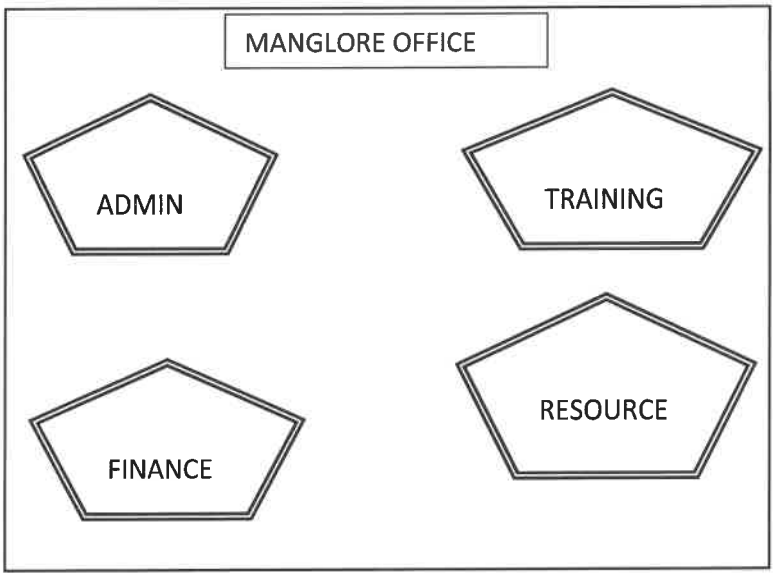
(iii) Display Item name and Trader name from tables ITEMS and TRADERS.

(iv) Display the number of items, which are traded by each trader.
The expected output of this query should be:
T01 2
T03 1
T02 2

32. Write a Program in Python that defines and calls the following user defined functions: 4
(i) addrec( ) – To accept and add data of an item to a CSV file '**item.csv**'. Each record consists of a list with field elements as icode, description and price to store item code, item description and price respectively.
(ii) searchrec( ) –To display the records of the those items with price less than 1000.

SECTION E

33. Bhartiya Connectivity Association located in Delhi has set up its new centre at Mangalore. 5
The Manglore office has 4 buildings as shown in the diagram below:



DELHI
HEAD OFFICE

Centre to centre distances between various buildings is as follows:

ADMIN to FINANCE	50 m
FINANCE to TRAINING	150 m
TRAINING to RESOURCE	25 m
ADMIN to RESOURCE	170 m
FINANCE to RESOURCE	125 m
ADMIN to TRAINING	90 m
Manglore to Delhi Head office	2233Km

Number of computers in each building is as follows:

ADMIN Building	25
FINANCE Building	50
TRAINING Building	150
RESOURCE Building	10

(i) Suggest and draw the cable layout to economically connect various buildings within the Mangalore Centre for connecting the digital devices.

(ii) Suggest the most suitable place (i.e. building) to house the SERVER in Manglore office with a suitable reason.

(iii) Suggest the placement of the following devices in each building at MANGLORE office with justification:
- Repeater
- Switch

(iv) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in MANGLORE?

(v) Suggest the type of network (out of LAN, MAN and WAN) to connect Training Department in Manglore to Delhi Head office with suitable reason.

34. (i) Differentiate between 'w+' and 'a+' file modes in Python. 2+3=5

(ii) Consider a file, '**Movie.dat**', containing records of the following structure:
[Movieid, Mname and Mtype]
Write a function, copyData( ), that reads contents from the file 'Movie.dat' and copies the records with Mtype as "Comedy" to the file named '**Cmovie.dat**'. The function should return the total number of records copied to the file 'Cmovie.dat'.

OR

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

(ii) A binary file "**Account.dat**" has the following structure:
[Acct_Number, Acct_Type, AcctHolderName, Balance]
Write a function CountBalanceAbove(BAL) that accepts BAL as parameter in Python that would read contents of the binary file "Account.dat" and display the details of those accounts in which Balance is more than BAL. Also display number of such accounts.

35. (i) Define equi-join. 1+4=5

(ii) Aamir wants to write a program in Python to insert the following record in the table named **BOOKS** in MYSQL database, **LIBRARY**:
- bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

The values of fields bookid, bookname and bookprice has to be accepted from the user. Help Aamir to write the program in Python.

OR

(i) Define primary key and foreign key.

(ii) Sanjeev has created a table named **BOOKS** in MYSQL database, **LIBRARY**:

- Bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

Sanjeev, now wants to display the records of books whose price is more than 1000. Help Sanjeev to write the program in Python.

******END OF THE QUESTION PAPER******

ROLL NUMBER					

CODE NUMBER	083/1/3
SET NUMBER	3

INDIAN SCHOOL MUSCAT
FIRST PRE BOARD EXAMINATION 2023
COMPUTER SCIENCE(083)

CLASS : XII
DATE: 30.11.2023

TIME ALLOTED : 3 HRS.
MAXIMUM MARKS: 70

GENERAL INSTRUCTIONS:

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

Ques. No.	Question	Marks

SECTION A

1. State True or False: 1
"Variable declaration is implicit in Python."

2. Which of the following is a DDL command? 1
(a) CREATE (b) DELETE (c) INSERT (d) UPDATE

3. What will be the output of the following statement: 1
print(16 - (4 + 2) * 5 + 2**3 * 4)
(a) 21 (b) 12 (c) 18 (d) 16

4. Consider the statements given below and then choose the correct output from the given options: 1
S="RAINY#SEASON"
print(S[-2:2:-2])
(a) IYSA (b) AN#E (c) OASY (d) No Output

5. All aggregate functions except _____ ignore null values in their input collection. 1
(a) Sum( ) (b) Count(*) (c) Avg( ) (d) Count(attribute)

6. Which of these is not an example of unguided media? 1
(a) Satellite (b) Radio wave (c) Bluetooth (d) Optical Fibre Cable

7. The command to merge the dictionary Book with Library would be: 1
(a) Book+Library (b) Book.add(Library)
(c) Book.update(Library) (d) Book.merge(Library)

8. What will be the output of the following code? 1
print("ComputerScience".split("er",2))

(a) ['Computer', 'Science'] (b) ['Comput', 'Science']
(c) ['Comput', 'erScience'] (d) ['Comput', 'er', 'Science']

9. Consider a tuple tup1 = (10, 15, 25, 30). Identify the statement that will result in an error. 1
(a) tup1[2] = 20 (b) print(tup1[2])
(c) print(min(tup1)) (d) print(len(tup1))

10. Which is NOT the possible output for the following Python code? 1

```
import random
flowers=["Rose","Jasmine","Sunflower","Lily"]
for I in range(random.randint(0,2)):
  print(flowers[I],'*',end=" ")
```

(a)Rose*Jasmine* (b) Rose*Jasmine*Sunflower*
(c) Rose* (d) No Output

11. Name the protocol which is helpful in Video conference. 1
(a) VoIP (b) IP (c) TCP (d) FTP

12. Consider the code given below: 1
Which of the following statement should be given in the blank for #Missing Statement, if the output produced is 240?

```
y = 200
def check(x) :
    _____ # missing statement
  y = y + x * 2
check(20)
print(y)
```

(a) global x=100 (b) global x (c) global y=10 (d) global y

13. State whether the following statement is True or False: 1
Programmers can also forcefully raise exceptions in a program using the raise and assert statements.

14. Fill in the blank: 1
_____clause is used to remove duplicate values of the table.
(a) DESCRIBE (b) DISTINCT (c) UNIQUE (d) NULL

15. Fill in the blank: 1

_____ is a device that connects dissimilar networks.

(a) Router (b) Repeater (c) Modem (d) Gateway

16. To move a file pointer f, 20 bytes ahead from the current position of file, function used is - 1

(a) f.seek(20) (b) f.seek(20,0) (c) f.seek(20,1) (d) f.seek(20,2)

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):- To use a function from a particular module, we need to import the module. 1
Reasoning (R):- import statement can be written anywhere in the program, before using a function from that module.

18. Assertion (A):- Keyword arguments are related to function calls. 1
Reasoning(R):- When you use keyword arguments in function call, the caller identifies the arguments by the parameter name.

SECTION B

19. (i) Expand the following terms: 2
FTP, POP3
(ii) Give one difference between XML and HTML.

OR

(i) Give one advantage of bus topology and one advantage of star topology.
(ii) Explain packet switching.

20. The code given below accepts a number as an argument and returns sum of all digits of a number. Observe the following code carefully and rewrite it after removing **all syntax and logical errors**. Underline all the corrections made. 2

```
Def SumOfDigits(num):
  s=0
  while num>0
    d = = num % 10
    s=s+d
    num //=10
    return s
print(SumOfDigits(1234))
```

21. Write a function VOWELS(STR) that takes string STR as an argument and returns the number of vowels in the string. 2

OR

Write a function countCity(CITY) in Python, that takes the dictionary, CITY as an argument and displays the names (in uppercase) of the cities whose names are longer than 7 characters.

For example, Consider the following dictionary
CITY={1:"Sydney",2:"Tokyo",3:"Pinkcity",4:"Beijing",5:"Suncity"}
The output should be:
PINKCITY

22. What will be the Output for the following code? 2

```
Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
del Language[4]
Language.remove("JAVA")
Language.pop(3)
print(Language)
```

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: 2
(i) To add elements **10, 60, 90** to the end of the list named, **LIST1**.
(ii) To count number of characters in a string named, **STR1** including spaces.

OR

A list named **Lstdata** stores list of numbers. Write the Python command to import the required module and (using built-in function) to display the middle value of numeric data in a list Lstdata.

24. Ms. Shalini has just created a table named **CAR** containing columns CARID, Model, Maker and Price. 2
Write SQL commands to :
(i) Add a column FUELTYPE to the table with datatype as varchar with 20 characters.
(ii) To display the structure of the table CAR.

OR

Kamal has created a table named **WORKER**. The attributes of Worker are as follows:
WORKER_ID – CHARACTER OF SIZE 3
NAME – CHARACTER OF SIZE 10
SALARY – NUMERIC
Write SQL commands to :
(i) Kamal wants to increase the size of the NAME column from 10 to 20 characters. Write an appropriate command to change the size.
(ii) Delete the table WORKER.

25. Write the output of the code given below: 2

```
p=50
def callme(q,r=3):
    global p
    p=r+q**2
    print(p, end= '#')
a=10
b=20
callme(a,b)
callme(r=20,q=2)
```

SECTION C

26. What output will be generated when the following Python code is executed? 3

```
Msg1="AuGMenTeD"
Msg2="REality"
Msg3=""
for I in range(0,len(Msg2)+1):
   if Msg1[I]>="A" and Msg1[I]<="M":
      Msg3=Msg3+Msg1[I]
   elif Msg1[I]>="N" and Msg1[I]<="Z":
      Msg3=Msg3+Msg2[I]
   else:
      Msg3=Msg3+"*"
print(Msg3)
```

27. Write the output of the queries (i) to (iii) based on the table, PATIENT given below: 3

Table: PATIENT

PNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
P101	Kavita	52	Surgery	800	F
P102	Ravi	35	ENT	200	M
P103	Sunil	45	Cardiology	250	M
P104	Shikha	40	ENT	300	F
P105	Rakhi	35	ENT	350	F
P106	Varun	30	Surgery	500	M

(i) SELECT DEPARTMENT, COUNT(*) FROM PATIENT
GROUP BY DEPARTMENT HAVING COUNT (*) >2 ;

(ii) SELECT SUM (CHARGES) FROM PATIENT WHERE GENDER = "F";

(iii) SELECT PNO, NAME FROM PATIENT
WHERE DEPARTMENT IN("Cardiology", "Surgery") ;

28. Write a function, DISPLAY( ) in Python to read a text file '**Diary.txt**' and displays those lines which are starting with an alphabet '**D**'. 3

OR

Write a function, CountUpper( ) in Python to read a text file "**Notes.txt**" that counts and displays the number of uppercase letters present in the text file.

29. **Table: GRADUATE** 3

SNO	NAME	STIPEND
1	KARAN	400
2	RAJA	500
3	VARUN	1000
4	NISHA	800

Based on the data given above answer the following questions:

(i) If 1 column is deleted and 3 rows are added to the table GRADUATE, what will be the new degree and cardinality of the above table?

(ii) Decrease the STIPEND by 5% whose NAME ends with 'A'.

(iii) Insert the following record into the table
SNO - 5, NAME - SHYAM, STIPEND - 700

30. A list named, CList contains following record of customer as list elements: 3
[Customer_name, RoomType, Advance]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named 'Hotel' :

(i) Push_Cust(CList) – It takes the nested list as an argument and pushes a list object containing name and advance of those customers who are staying in 'Delux' Room Type.

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

For example:
If the nested list contains the following data:
CList=[["Sunil","Delux",2000],["Rahul","Standard",1000],["Jerry","Delux",1500]]

The stack should contain:
['Jerry', 1500]
['Sunil', 2000]

The output should be:
['Jerry', 1500]
['Sunil', 2000]
Stack Empty

SECTION D

31. Write queries (i) to (iv) based on the tables **TRADERS** and **ITEMS** given below: 4

Table: TRADERS

TCODE	TNAME	CITY
T01	ELECTRONICS SALES	MUMBAI
T02	BUSY STORE CORP	DELHI
T03	DISP HOUSE INC	CHENNAI

Table: ITEMS

CODE	INAME	QTY	PRICE	COMPANY	TCODE
1001	Digital Pad	120	11000	XENITA	T01
1006	LED Screen	70	38000	SANTORA	T02
1004	CAR GPS	60	2150	GEOKNOW	T01
1003	Digital Cam 12 X	160	8000	DIGICLICK	T02
1005	PenDrive 32GB	600	1200	STOREHOME	T03

(i) Display name, price and company of all the items in ascending order of item names.

(ii) Display item name and price of all those items, whose price is in the range of 10000 and 40000. (both values inclusive).

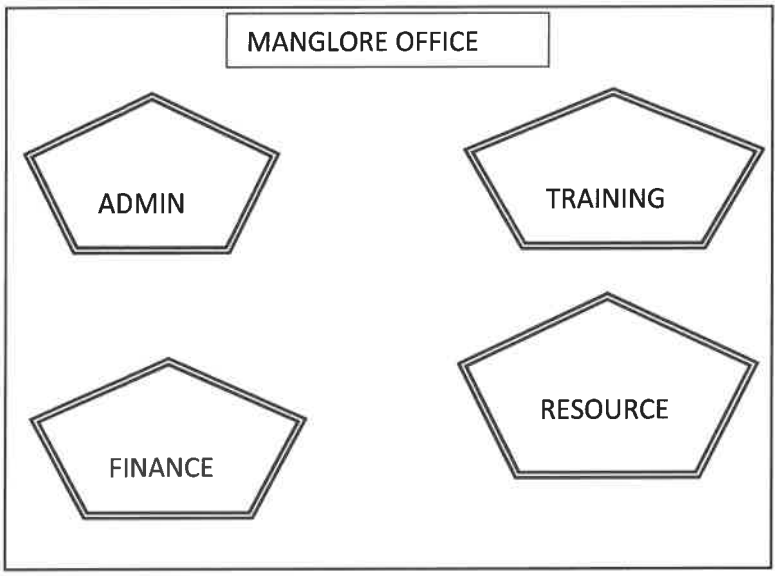
(iii) Display Item name, Trader name and City from tables ITEMS and TRADERS.

(iv) Display the number of items, which are traded by each trader.
The expected output of this query should be:
T01 2
T03 1
T02 2

32. Write a Program in Python that defines and calls the following user defined functions: 4
(i) addrec( ) – To accept and add data of a product to a CSV file '**product.csv**'. Each record consists of a list with field elements as pcode, description and price to store product code, product description and price respectively.
(ii) searchrec( ) –To display the records of the those products with price more than 3000.

SECTION E

33. Bhartiya Connectivity Association located in Delhi has set up its new centre at Mangalore. 5
The Manglore office has 4 buildings as shown in the diagram below:



DELHI
HEAD OFFICE

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Number of computers in each building is as follows:

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(i) Suggest and draw the cable layout to economically connect various buildings within the Mangalore Centre for connecting the digital devices.

(ii) Suggest the most suitable place (i.e. building) to house the SERVER in Manglore office with a suitable reason.

(iii) Suggest the placement of the following devices in each building at MANGLORE office with justification:
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(ii) Consider a file, '**Movie.dat**', containing records of the following structure:
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Write a function, copyData(), that reads contents from the file 'Movie.dat' and copies the records with Mtype as "Comedy" to the file named '**Cmovie.dat**'. The function should return the total number of records copied to the file 'Cmovie.dat'.

OR

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

(ii) A binary file "**Account.dat**" has the following structure:
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Write a function CountBalanceAbove(BAL) that accepts BAL as parameter in Python that would read contents of the binary file "Account.dat" and display the details of those accounts in which Balance is more than BAL. Also display number of such accounts.

35. (i) Explain cartesian product on two tables. 1+4=5

(ii) Samir wants to write a program in Python to insert the following record in the table named **BOOKS** in MYSQL database, **LIBRARY**:
- bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

The values of fields bookid, bookname and bookprice has to be accepted from the user. Help Samir to write the program in Python.

OR

(i) Define Domain and Primary key.

(ii) Ramesh has created a table named **BOOKS** in MYSQL database, **LIBRARY**:

- Bookid - integer
- bookname - string
- bookprice – float

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

Ramesh, now wants to display the records of books whose price is more than 2000. Help Ramesh to write the program in Python.

******END OF THE QUESTION PAPER******