ROLL NUMBER					

SET	A

INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2022
COMPUTER SCIENCE (083)

CLASS : XII
DATE: 28.11.2022

TIME ALLOTTED : 3 HRS.
MAXIMUM MARKS: 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 (iii) only.
8. All programming questions are to be answered using Python Language only.

SECTION A

1. State True or False
"Relational operators return either True or False". 1

2. Which of the following operator cannot be used with string data type? 1
(a) + (b) in (c) * (d) /

3. User can also add elements into an empty dictionary by 1
(a) dictionary_name=value (b) dictionary_name[key]=value
(c) dictionary_name(key)=value (d) dictionary_name{key}=value

4. Consider the given expression: 1
(5<10) and (10<5) or (3<18) and not 8<18

Which of the following will be correct output if the given expression is evaluated?
(a) True (b) False (c) NONE (d) NULL

5. Raju opened a file in python using open( ) function but forgot to specify the mode. In which mode the file will open? 1
(a) append mode (b) read write mode (c) read mode (d) write mode

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

```
str1 = "H#E#L#L#O"
b = list(str1.split( "#",2))
print(b)
```

(a) ['H', 'E', 'L#L#O'] (b) ['H', 'E', 'L', 'L', 'O']
(c) ['H#E', 'L#L#O'] (d) Error

7. Fill in the blank: 1
_____command is used to modify the records of the table in SQL?
(a) alter (b) remove (c) update (d) modify

8. Which MySQL command is used to see the structure of a table / relation? 1
(a) Desc (b) Show (c) Display (d) Select

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. How many Primary keys can be there in a table in SQL? 1
(a) Only 1 (b) Only 2 (c) Depends on no of Columns (d) Depends on DBA

11. Syntax of seek function in Python is myfile.seek(offset, reference_point) where myfile is the file object. What is the default value of reference_point? 1
(a) 0 (b) 1 (c) 2 (d) 3

12. Fill in the blank: 1
The ..... command removes a table permanently in SQL.
(a) DELETE (b) REMOVE (c) DROP (d) UPDATE

13. A function that does not return any value, then what value is thrown by default when this function is executed? 1
(a) int (b) bool (c) void (d) None

14. What will the following expression print in Python? 1

```
print( 5 * 3 // 4 + 6 // 8 + 7 - 3 + 9 // 3 + 7)
```

(a) 17 (b) 20 (c) 27 (d) 14

15. Which function returns the average value of a numeric column in a table in SQL? 1
(a) average( ) (b) avg( ) (c) count( ) (d) avgc( )

16. Name the method which is used for displaying only one resultset. 1
(a) fetchall( ) (b) fetchone( ) (c) fetch(one) (d) onefetch( )

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 dictionary consists of a collection of key-value pairs. 1
Reasoning (R):- Each key-value pair maps the key to its associated value.

18. Assertion (A): Pickling is the process of converting structure to a byte stream before writing to a binary file. 1
Reason (R): Unpickling is the process of converting a byte stream back to the original structure while reading the contents of the binary file.

SECTION B

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

```
def game( ):
  Moves=[11, 22, 33, 44)
  Queen=Moves
  Moves[2] += 22
  L=len(Moves)
  for i in range (L)
    print ("Now@", Queen[L-i-1], "#" + Moves [i])
Game()
```

20. Differentiate between actual parameter(s) and a formal parameter(s). Give an example for each. 2

OR

What is the utility of default arguments in function? Explain with an example.

21. (a) Give correct output of the code: 2

```
str1 = "Python Programming"
new = str1[0 : 2] + str1[-8 : -4]
print(new)
```

(b) Predict the output:

```
dic={'a' : 1, 'b' : 'a', 'c' : 3, 'd' : 4}
if 'a' in dic :
   del dic['a']
print(dic)
```

22. What do you understand by Candidate Keys in a table? Give a suitable example of Candidate Keys from a table containing some meaningful data. 2

23. (a) What is the advantage of **with** statement with respect to files? 2

(b) What is the significance of the tell() method?

24. What is the difference between HAVING clause and WHERE clause in SQL? 2

OR

How is equi-join different from natural join? Give an example.

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

```
def short(lst,n):
    for i in range(0,n):
        if len(lst[i])>4:
            lst[i] = lst[i][0:4]
        else:
            lst[i] = lst[i]
sub=['IP','HINDI','CS','Mathematics','Chemistry','Physics']
short(sub,6)
for i in  sub:
    print(i,end=',')
```

OR

Predict the output of the Python code given below:

```
def ChangeList():
    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)
ChangeList()
```

SECTION C

26. (a) Define foreign key. 3

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

Table: HOSPITAL

DNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
D101	Ankita	52	Surgery	800	F
D102	Kush	35	ENT	200	M
D103	Sameer	45	Cardiology	250	M
D104	Shilpa	40	ENT	300	F
D105	Ketaki	35	ENT	350	F
D106	Arun	30	Surgery	500	M

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

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

(iii) SELECT NAME,CHARGES FROM HOSPITAL
WHERE CHARGES>500 AND NAME Like "%a" ;

(iv) SELECT DNO, NAME FROM HOSPITAL
WHERE DEPARTMENT IN("Cardiology","Surgery") ;

27. Write a function in Python to read a text file '**MYFILE.TXT**' and display the number of lines in this file which are not starting with an alphabet 'P'. 3

OR

Write a function in Python that counts the number of "**Me**" or "**My**" words present in a text file "**DATA.TXT**". If the "DATA.TXT" contents are as follows:

My first book was Me and My Family.
My family is a small family.

The output of the function should be:
Count of Me/My in file: 4

28. Write SQL queries (i) to (iii) based on the relations **BOOK** and **MEMBER** given below: 3

TABLE :BOOK

CODE	BNAME	TYPE	QTY
F101	The priest	Fiction	15
L102	German easy	Literature	10
C101	Tarzan in the lost world	Comic	20
F102	Untold Story	Fiction	40
C102	War Heroes	Comic	30

TABLE: MEMBER

MNO	MNAME	CODE	ISSUEDATE
M101	RAGHAV SINHA	L102	2022-10-13
M103	SARTHAK JOHN	F102	2022-02-23
M102	ANISHA KHAN	C101	2022-06-12

(i) To display all details from table MEMBER in descending order of ISSUEDATE.

(ii) To display the CODE, BNAME and MNAME which have quantity (i.e. QTY) more than 10.

(iii) To display the TYPE and number of books in each TYPE from the table BOOK.

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 Data of the list
Arr= [10,20,30,40,12,11], n=2

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

30. Teena has created a list of marks of 10 students. Write a program, with separate user defined functions to perform the following operations based on this list : 3

- Push the marks into a stack, where the marks are greater than 80.
- Pop and display the content of the stack.

For example:
If the sample content of the list is as follows:
M = [90, 45, 79, 84, 92, 60, 59, 95, 35, 88]

Sample Output of the code should be:
88 95 92 84 90

OR

Vinay has a list containing 10 integers. You need to help him to create a program with separate user defined functions to perform the following operations based on this list.

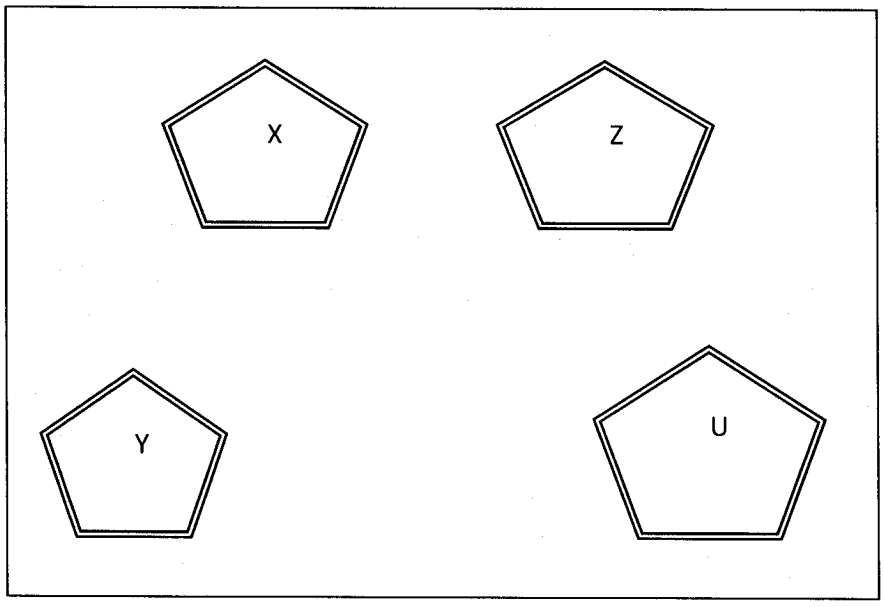
- Traverse the content of the list and push the odd numbers into a stack.
- Pop and display the content of the stack.

For example:
If the sample Content of the list is as follows:
N = [16, 91, 52, 43, 12, 65, 23, 87, 18, 15]

Sample Output of the code should be:
15 87 23 65 43 91

SECTION D

31. Quick Learn Organization has set up its new centre at Mangalore for its office and web based activities. The company compound has 4 buildings as shown in the diagram below: 5



Centre to centre distances between various buildings is as follows:

X to Y	50 m
Y to Z	150 m
Z to U	25 m
X to U	170 m
Y to U	125 m
X to Z	90 m

Number of computers in each building is as follows:

X Building	25
Y Building	50
Z Building	150
U 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 of this organization with a suitable reason.

(iii) Suggest the placement of the following devices with justification:
- Repeater
- Switch

(iv) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with a reasonably high speed.

(v) Suggest the type of network (out of LAN, MAN and WAN) to connect all the 4 buildings with a suitable reason.

32. The code given below inserts the following record in the table **books**: 5

Bno – integer
Title – string
Author – 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 **bookstore**.
- The details (Bno, Title, Author and Price) are to be accepted from the user.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the command that inserts the record in the table books.
Statement 5 – to add the record permanently in the database.

```
import _____ #Statement 1
def books_data( ):
   con1=mys.connect(_____) #statement 2
   mycursor=_____ #Statement 3
   bno=int(input("Enter Book Number :: "))
   title=input("Enter Book Title:: ")
   author=input("Enter Author Name :: ")
   price=int(input("Enter Price :: "))
   querry="insert into books values({},'{}', '{}',{})".format(bno,title,author,price)
   _____ #Statement 4
   _____ # Statement 5
   print("Data Added successfully")
```

OR

The code given below reads the following record from the table named **books** and displays only those records which have price greater than 1000:

Bno – integer
Title – string
Author – 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 **bookstore**.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the query that extracts records of those books whose price is greater than 1000.
Statement 5 – to read the complete result of the query (records whose price is greater than 1000) into the object named data, from the table books in the database.

```
import _____ #Statement 1
def sql_data( ):
  con1=mys.connect(_____) #Statement 2
  mycursor=_____ #Statement 3
  print("Books with price greater than 1000 are : ")
  _____ #Statement 4
  data=_____ #Statement 5
  for i in data:
      print(i)
  print()
```

33. Give any one point of difference between a csv file and a binary file. 5

Sneha is making a software on "Countries & their Capitals" in which various records are to be stored in **'CAPITAL.CSV'** file.
Write a Program in Python that defines and calls the following user defined functions:

(i) ADDREC( ) – To accept and add data of "Countries & their Capitals" to a CSV file 'CAPITAL.CSV'. Each record consists of a list with field elements as **country** and **capital** to store Country and Capital respectively.

(ii) COUNTREC( ) – To count the number of records present in the CSV file named 'CAPITAL.CSV'.

OR

Give any one point of difference between a binary file and a text file.

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

(i) addrec( ) – To accept and add data of an employee to a CSV file **'employee.csv'**. Each record consists of a list with field elements as **eid**, **ename** and **salary** to store employee id, name and salary respectively.

(ii) searchrec( ) –To display the records of the employees whose salary is more than 7000.

SECTION E

34. **Table: PRODUCT** 4

PNO	Pname	Qty	Manufacturer
101	Pen	100	LAK
102	Pencil	201	ABC
103	Eraser	90	ABC
109	Sharpener	90	XYZ
113	Clips	900	XYZ

Based on the data given above answer the following questions:

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

(ii) Which field should be the primary key? Justify your answer.

(iii) Write the statements to:
   a. Insert the following record into the table
      PNO- 115, Pname- 'Box', Qty- 70, Manufacturer -'ABC'.
   b. Decrease the QTY of the product by 5% whose Pname begins with 'P'.

OR (Option for part iii only)

(iii) Write the statements to:
   a. Delete the records of products manufactured by 'ABC'.
   b. Add a column **Price** in the table with datatype as decimal(10,2).

35. Rohit has been given the following incomplete code for entering his details (Name, contact number and address) to a binary file "**Personal.dat**" and display the contents. Complete the missing code to open, create and display the file. 4

```
import _____ #Statement 1
mydata=[ ]
name=input("Enter Name:")
contactno=int(input("Enter contact number:"))
address=input("Enter address:")
mydata=[name,contactno,address]
f1=open("Personal.dat","wb")
pickle._____ # Statement 2
f1.close( )
f2=_____ # Statement 3
result=_____ # Statement 4
print(" The content of file :", result)
f2.close( )
```

(i) Name the module he should import in Statement 1.

(ii) Fill in the blank in Statement 2 with the function to write entire contents to file.

(iii) Fill in the blank in Statement 3 to open the file for displaying contents of file.

(iv) Fill in the blank in Statement 4 to read the contents of the file.

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

ROLL NUMBER				

SET	B

INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2022
COMPUTER SCIENCE (083)

CLASS : XII
DATE: 28.11.2022

TIME ALLOTTED : 3 HRS.
MAXIMUM MARKS: 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 (iii) only.
8. All programming questions are to be answered using Python Language only.

SECTION A

1. Name the method which is used for displaying only one resultset. 1
(a) fetchone(1) (b) fetchone( ) (c) fetch(one) (d) onefetch( )

2. Which function returns the average value of a numeric column in a table in SQL? 1
(a) average( ) (b) avg( ) (c) count( ) (d) avgc( )

3. What will the following expression print in Python? 1
print(9 * 5 // 3 + 8 // 6 + 9 - 3 + 27 // 3 + 5)
(a) 37 (b) 36 (c) 26 (d) 14

4. A function that does not return any value, then what value is thrown by default when this function is executed? 1
(a) int (b) bool (c) null (d) None

5. Fill in the blank: 1
The ..... command removes a table permanently in SQL.
(a) DELETE (b) REMOVE (c) DROP (d) UPDATE

6. Syntax of seek function in Python is myfile.seek(offset, reference_point) where myfile is the file object. What is the default value of reference_point? 1
(a) 0 (b) 1 (c) 2 (d) 3

7. How many Primary keys can be there in a table in SQL? 1
(a) Only 1 (b) Only 2 (c) Depends on no of Columns (d) Depends on DBA

8. 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))

9. Which MySQL command is used to see the structure of a table / relation? 1
(a) Desc (b) Show (c) Display (d) Select

10. Fill in the blank: 1
_____command is used to modify the records of the table in SQL?
(a) alter (b) remove (c) update (d) modify

11. Sanjay opened a file in python using open( ) function but forgot to specify the mode. In which mode the file will open? 1
(a) append mode (b) append write mode (c) read mode (d) write mode

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

```
str1 = "I#N#D#I#A"
b = list(str1.split( "#",2))
print(b)
```

(a) ['I', 'N', 'D', 'I#A'] (b) ['I', 'N', 'D', 'I', 'A']
(c) ['I', 'N', 'D#I#A'] (d) Error

13. Consider the given expression: 1
(3<20) or (40<50) and (13<25) and not 7<17

Which of the following will be correct output if the given expression is evaluated?
(a) True (b) False (c) NONE (d) NULL

14. User can also add elements into an empty dictionary by 1
(a) dictionary_name=value (b) dictionary_name[key]=value
(c) dictionary_name(key)=value (d) dictionary_name{key}=value

15. Which of the following operator cannot be used with string data type? 1
(a) + (b) in (c) * (d) /

16. State True or False 1
"Relational operators return either True or False".

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): Pickling is the process of converting structure to a byte stream before writing to a binary file. 1
Reason (R): Unpickling is the process of converting a byte stream back to the original structure while reading the contents of the binary file.

18. Assertion (A):- A dictionary consists of a collection of key-value pairs. 1
Reasoning (R):- Each key-value pair maps the key to its associated value.

SECTION B

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

```
def game( ):
  Moves=[11, 22, 33, 44)
  Queen=Moves
  Moves[2] += 22
  L=len(Moves)
  for i in range (L)
    print ("Now@", Queen[L-i-1], "#" + Moves [i])
Game()
```

20. Differentiate between actual parameter(s) and a formal parameter(s). Give an example for each. 2

OR

What is the utility of keyword arguments in function? Explain with an example.

21. (a) Give correct output of the code: 2

```
str1 = "Final Examination"
new = str1[1 : 3] + str1[-11 : -5]
print(new)
```

(b) Predict the output:

```
x={1:"One", 2:"Two", 3:"Three"}
y={4:"Four", 2:"Twenty",}
y.update(x)
print(y)
```

22. What do you understand by Candidate Keys in a table? Give a suitable example of Candidate Keys from a table containing some meaningful data. 2

23. (a) What is the advantage of **with** statement with respect to files? 2

(b) What is the significance of the tell() method?

24. What is the difference between GROUP BY clause and ORDER BY clause in SQL? 2

OR

Differentiate between cross join and equi-join of two relations in a database. Give example.

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

```
def short(lst,n):
    for i in range(0,n):
        if len(lst[i])>4:
            lst[i]=lst[i][0:4]
        else:
            lst[i]=lst[i]
num=['One','Two','Three','Ten','Hundred','Thousand']
short(num,6)
for i in  num:
    print(i,end=',')
```

OR

Predict the output of the Python code given below:

```
def NewList():
    X=[ ]
    X1=[ ]
    X2=[ ]
    for i in range(1,10):
        X.append(i)
    for i in range(10,1,-2):
        X1.append(i)
    for i in range(len(X1)):
        X2.append(X1[i]+X[i])
    X2.append(len(X)-len(X1))
    print(X2)
NewList()
```

SECTION C

26. (a) Define foreign key. 3

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

Table: HOSPITAL

DNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
D101	Ankita	52	Surgery	800	F
D102	Kush	35	ENT	200	M
D103	Sameer	45	Cardiology	250	M
D104	Shilpa	40	ENT	300	F
D105	Ketaki	35	ENT	350	F
D106	Arun	30	Surgery	500	M

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

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

(iii) SELECT NAME,CHARGES FROM HOSPITAL
WHERE CHARGES<600 AND NAME Like "A%" ;

(iv) SELECT DNO, NAME FROM HOSPITAL
WHERE DEPARTMENT IN("Cardiology","Surgery") ;

27. Write a function in Python to read a text file "**MYNOTES.TXT**" and display the number of uppercase letters in this text file. 3

OR

Write a function in Python that counts the number of "**OUR**" word present in a text file "**HEALTH.TXT**". If the "HEALTH.TXT" contents are as follows:

A CLEAN ENVIRONMENT IS NECESSARY FOR OUR GOOD HEALTH.
WE SHOULD TAKE CARE OF OUR ENVIRONMENT.

The output of the function should be:
Count of OUR in file: 2

28. Write SQL queries (i) to (iii) based on the relations **BOOK** and **MEMBER** given below: 3

TABLE :BOOK

CODE	BNAME	TYPE	QTY
F101	The priest	Fiction	15
L102	German easy	Literature	10
C101	Tarzan in the lost world	Comic	20
F102	Untold Story	Fiction	40
C102	War Heroes	Comic	30

TABLE: MEMBER

MNO	MNAME	CODE	ISSUEDATE
M101	RAGHAV SINHA	L102	2022-10-13
M103	SARTHAK JOHN	F102	2022-02-23
M102	ANISHA KHAN	C101	2022-06-12

(i) To display all details from table MEMBER in ascending order of ISSUEDATE.

(ii) To display the CODE, BNAME and MNAME which have quantity (i.e. QTY) less than 30.

(iii) To display the TYPE and number of books in each TYPE from the table BOOK.

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 Data of the list
Arr= [10,20,30,40,12,11], n=2
Output
Arr = [30,40,12,11,10,20]

30. Teena has created a list of marks of 10 students. Write a program, with separate user defined functions to perform the following operations based on this list : 3

- Push the marks into a stack, where the marks are greater than 80.
- Pop and display the content of the stack.

For example:
If the sample content of the list is as follows:
M = [90, 45, 79, 84, 92, 60, 59, 95, 35, 88]

Sample Output of the code should be:
88 95 92 84 90

OR

Vinay has a list containing 10 integers. You need to help him to create a program with separate user defined functions to perform the following operations based on this list.

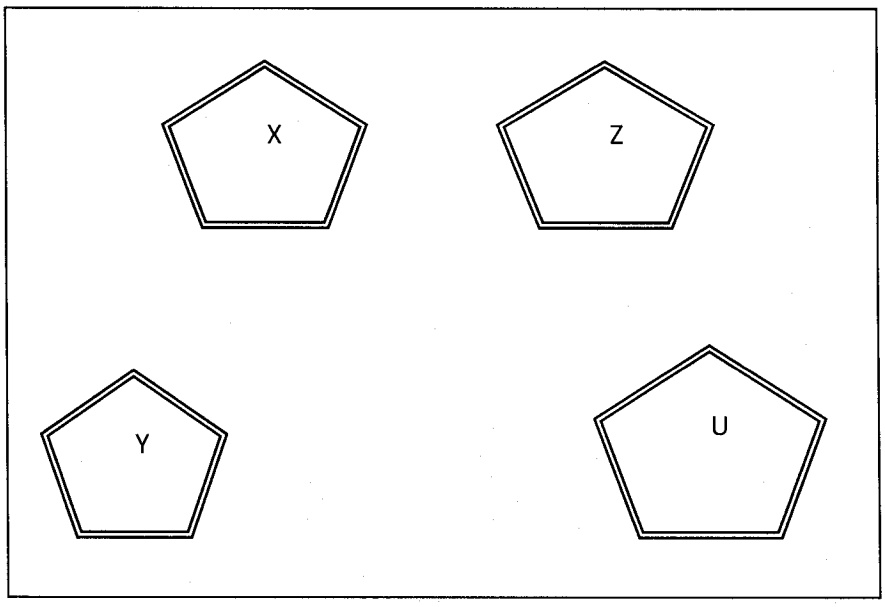
- Traverse the content of the list and push the odd numbers into a stack.
- Pop and display the content of the stack.

For example:
If the sample Content of the list is as follows:
N = [16, 91, 52, 43, 12, 65, 23, 87, 18, 15]

Sample Output of the code should be:
15 87 23 65 43 91

SECTION D

31. Quick Learn Organization has set up its new centre at Mangalore for its office and web based activities. The company compound has 4 buildings as shown in the diagram below: 5



Centre to centre distances between various buildings is as follows:

X to Y	50 m
Y to Z	150 m
Z to U	25 m
X to U	170 m
Y to U	125 m
X to Z	90 m

Number of computers in each building is as follows:

X Building	25
Y Building	50
Z Building	150
U 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 of this organization with a suitable reason.

(iii) Suggest the placement of the following devices with justification:
- Repeater
- Switch

(iv) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with a reasonably high speed.

(v) Suggest the type of network (out of LAN, MAN and WAN) to connect all the 4 buildings with a suitable reason.

32. The code given below inserts the following record in the table **books**: 5

Bno – integer
Title – string
Author – 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 **bookstore**.
- The details (Bno, Title, Author and Price) are to be accepted from the user.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the command that inserts the record in the table books.
Statement 5 – to add the record permanently in the database.

```
import _____ #Statement 1
def books_data( ):
   con1=ms.connect(_____) #statement 2
   mycursor=_____ #Statement 3
   bno=int(input("Enter Book Number :: "))
   title=input("Enter Book Title:: ")
   author=input("Enter Author Name :: ")
   price=int(input("Enter Price :: "))
   querry="insert into books values({},'{}', '{}',{})".format(bno,title,author,price)
   _____ #Statement 4
   _____ # Statement 5
   print("Data Added successfully")
```

OR

The code given below reads the following record from the table named **books** and displays only those records which have price greater than 1000:

Bno – integer
Title – string
Author – 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 **bookstore**.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the query that extracts records of those books whose price is greater than 1000.
Statement 5 – to read the complete result of the query (records whose price is greater than 1000) into the object named data, from the table books in the database.

```
import _____ #Statement 1
def sql_data( ):
  con1=ms.connect(_____) #Statement 2
  mycursor=_____ #Statement 3
  print("Books with price greater than 1000 are : ")
  _____ #Statement 4
  data=_____ #Statement 5
  for i in data:
      print(i)
  print()
```

33. Give any one point of difference between a csv file and a text file. 5

Meena is making a software on "Countries & their Capitals" in which various records are to be stored in **'CAP.CSV'** file.
Write a Program in Python that defines and calls the following user defined functions:

(i) ADD_REC( ) – To accept and add data of "Countries & their Capitals" to a CSV file 'CAP.CSV'. Each record consists of a list with field elements as **country** and **capital** to store Country and Capital respectively.

(ii) COUNT_REC( ) – To count the number of records present in the CSV file named 'CAP.CSV'.

OR

Give any one point of difference between a binary file and a text file.

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

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

(ii) searchrec( ) –To display the records of the employees whose salary is more than 5000.

SECTION E

34. **Table: APPLICANTS** 4

Rollno	Name	Gender	Fee
10	Jaya	F	4000
11	Teena	F	2000
12	Rohan	M	6000
13	Jayant	M	5000
14	Shreya	F	4000

Based on the data given above answer the following questions:

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

(ii) Which field should be the primary key? Justify your answer.

(iii) Write the SQL statements to:

a. Insert the following record into the table
Rollno- 15, Name- 'Arun', Gender- 'M', Fee-6000.

b. Increase the Fee of the applicant by 10% whose Name begins with 'J'.

OR (Option for part iii only)

(iii) Write the SQL statements to:

a. Delete the records of applicants whose fee is less than 3000.

b. Add a column **Email** in the table with datatype as varchar with 30 characters.

35. Roshan has been given the following incomplete code for entering his details (Name, contact number and address) to a binary file "**Info.dat**" and display the contents. Complete the missing code to open, create and display the file. 4

```
import _____ #Statement 1
mydata=[ ]
name=input("Enter Name:")
contactno=int(input("Enter contact number:"))
address=input("Enter address:")
mydata=[name,contactno,address]
f1=open("Info.dat","wb")
pickle._____ # Statement 2
f1.close( )
f2=_____ # Statement 3
result=_____ # Statement 4
print(" The content of file :", result)
f2.close( )
```

(i) Name the module he should import in Statement 1.

(ii) Fill in the blank in Statement 2 with the function to write entire contents to file.

(iii) Fill in the blank in Statement 3 to open the file for displaying contents of file.

(iv) Fill in the blank in Statement 4 to read the contents of the file.

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

ROLL NUMBER					

SET	C

INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2022
COMPUTER SCIENCE (083)

CLASS : XII
DATE: 28.11.2022

TIME ALLOTTED : 3 HRS.
MAXIMUM MARKS: 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 (iii) only.
8. All programming questions are to be answered using Python Language only.

SECTION A

1. 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(max(tup1)) (d) print(len(tup1))

2. How many Primary keys can be there in a table in SQL? 1
(a) Only 1 (b) Only 2 (c) Depends on no of Columns (d) Depends on DBA

3. Syntax of seek function in Python is myfile.seek(offset, reference_point) where myfile is the file object. What is the default value of reference_point? 1
(a) 0 (b) 1 (c) 2 (d) 3

4. Fill in the blank: 1
The ..... command removes a table permanently in SQL.
(a) DELETE (b) REMOVE (c) DROP (d) UPDATE

5. If a function returns more than one value and the function call is assigned into a single variable, what will be the data type of the variable? 1
(a) List (b)Tuple (c) Dictionary (d) String

6. What will the following expression print in Python? 1
print(3* 4 // 5 + 5 // 7 + 8 - 2 *4 // 2)

(a) 16 (b) 8 (c) 6 (d) 4

7. Which function returns the average value of a numeric column in a table in SQL? 1
(a) average( ) (b) avg( ) (c) count( ) (d) avgc( )

8. Name the method which is used for displaying only one resultset. 1
(a) fetchone(1) (b) fetchone( ) (c) fetch(one) (d) onefetch( )

9. State True or False. 1
"Relational operators return either True or False".

10. Which of the following operator cannot be used with string data type? 1
(a) + (b) in (c) * (d) /

11. User can also add elements into an empty dictionary by: 1
(a) dictionary_name=value (b) dictionary_name[key]=value
(c) dictionary_name(key)=value (d) dictionary_name{key}=value

12. Consider the given expression: 1
(3<7) and not 5<15 or (6<14) and (9<2)

Which of the following will be correct output if the given expression is evaluated?
(a) True (b) False (c) NONE (d) NULL

13. What will be the output of the following Python code? 1
```
str1 = "P@Y@T@H@O@N"
b = list(str1.split( "@",3))
print(b)
```

(a) ['P', 'Y', 'T', 'H', 'O', 'N'] (b) ['P', 'Y', 'T', 'H@O@N']
(c)) ['P', 'Y', 'T@H@O@N'] (d) Error

14. Rajiv opened a file in python using open( ) function but forgot to specify the mode. In which mode the file will open? 1
(a) append mode (b) append write mode (c) read mode (d) write mode

15. Fill in the blank: 1
_____command is used to modify the records of the table in SQL?
(a) alter (b) remove (c) update (d) modify

16. Which MySQL command is used to see the structure of a table / relation? 1
(a) Desc (b) Show (c) Display (d) Select

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 dictionary consists of a collection of key-value pairs. 1
Reasoning (R):- Each key-value pair maps the key to its associated value.

18. Assertion (A): Pickling is the process of converting structure to a byte stream before writing to a binary file. 1
Reason (R): Unpickling is the process of converting a byte stream back to the original structure while reading the contents of the binary file.

SECTION B

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

```
def game( ):
  Moves=[11, 22, 33, 44)
  Queen=Moves
  Moves[2] += 22
  L=len(Moves)
  for i in range (L)
    print ("Now@", Queen[L-i-1], "#"+ Moves [i])
Game()
```

20. Differentiate between actual parameter(s) and a formal parameter(s). Give an example for each. 2

OR

What is the utility of default arguments in function? Explain with an example.

21. (a) Give correct output of the code: 2

```
str1 = "Computer Science"
new = str1[0 : 2] + str1[-7 : -4]
print(new)
```

(b) Predict the output:

```
dic={'p' : 11, 'q' : 'p', 'r' : 22, 's' : 33}
if 'p' in dic :
   del dic['p']
print(dic)
```

22. What do you understand by Candidate Keys in a table? Give a suitable example of Candidate Keys from a table containing some meaningful data. 2

23. (a) What is the advantage of **with** statement with respect to files? 2

(b) What is the significance of the tell() method?

24. Differentiate between char(n) and varchar(n) data types with respect to databases. 2

OR

How is cross join different from natural join? Give an example.

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

```
def short(lst,n):
    for i in range(0,n):
        if len(lst[i])>4:
            lst[i]=lst[i][0:4]
        else:
            lst[i]=lst[i]
colours=['BLUE','YELLOW','GREEN','BLACK','RED','WHITE']
short(colours,6)
for i in colours:
    print(i,end=',')
```

OR

Predict the output of the Python code given below:

```
def ChangeList():
    A=[ ]
    A1=[ ]
    A2=[ ]
    for i in range(1,10):
        A.append(i)
    for i in range(10,1,-2):
        A1.append(i)
    for i in range(len(A1)):
        A2.append(A1[i]+A[i])
    A2.append(len(A)-len(A1))
    print(A2)
ChangeList()
```

SECTION C

26. (a) Define foreign key. 3

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

Table: HOSPITAL

DNO	NAME	AGE	DEPARTMENT	CHARGES	GENDER
D101	Ankita	52	Surgery	800	F
D102	Kush	35	ENT	200	M
D103	Sameer	45	Cardiology	250	M
D104	Shilpa	40	ENT	300	F
D105	Ketaki	35	ENT	350	F
D106	Arun	30	Surgery	500	M

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

(ii) SELECT MAX(CHARGES) FROM HOSPITAL WHERE GENDER = "M";

(iii) SELECT NAME,CHARGES FROM HOSPITAL
WHERE CHARGES>600 AND NAME Like "A%" ;

(iv) SELECT DNO, NAME FROM HOSPITAL
WHERE DEPARTMENT IN("Cardiology","Surgery") ;

27. Write a function in Python to read a text file '**ARTICLE.TXT**' and display the number of lines in this file which are not starting with an alphabet 'L'. 3

OR

Write a function in Python that counts the number of "**computer**" word present in a text file "NOTES.TXT". If the "NOTES.TXT" contents are as follows:

Input is the raw information entered into a computer from the input devices.
Output is the processed data given by computer after data processing.

The output of the function should be:
Count of word computer in file: 2

28. Write SQL queries (i) to (iii) based on the relations **BOOK** and **MEMBER** given below: 3

TABLE :BOOK

CODE	BNAME	TYPE	QTY
F101	The priest	Fiction	15
L102	German easy	Literature	10
C101	Tarzan in the lost world	Comic	20
F102	Untold Story	Fiction	40
C102	War Heroes	Comic	30

TABLE: MEMBER

MNO	MNAME	CODE	ISSUEDATE
M101	RAGHAV SINHA	L102	2022-10-13
M103	SARTHAK JOHN	F102	2022-02-23
M102	ANISHA KHAN	C101	2022-06-12

(i) To display all details from table MEMBER in descending order of ISSUEDATE.

(ii) To display the CODE, BNAME and MNAME which have quantity (i.e. QTY) more than 20.

(iii) To display the TYPE and number of books in each TYPE from the table BOOK.

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 Data of the list
Arr= [10,20,30,40,12,11], n=2

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

30. Teena has created a list of marks of 10 students. Write a program, with separate user defined functions to perform the following operations based on this list : 3

- Push the marks into a stack, where the marks is greater than 80.
- Pop and display the content of the stack.

For example:
If the sample content of the list is as follows:
M = [90, 45, 79, 84, 92, 60, 59, 95, 35, 88]

Sample Output of the code should be:
88 95 92 84 90

OR

Vinay has a list containing 10 integers. You need to help him to create a program with separate user defined functions to perform the following operations based on this list.

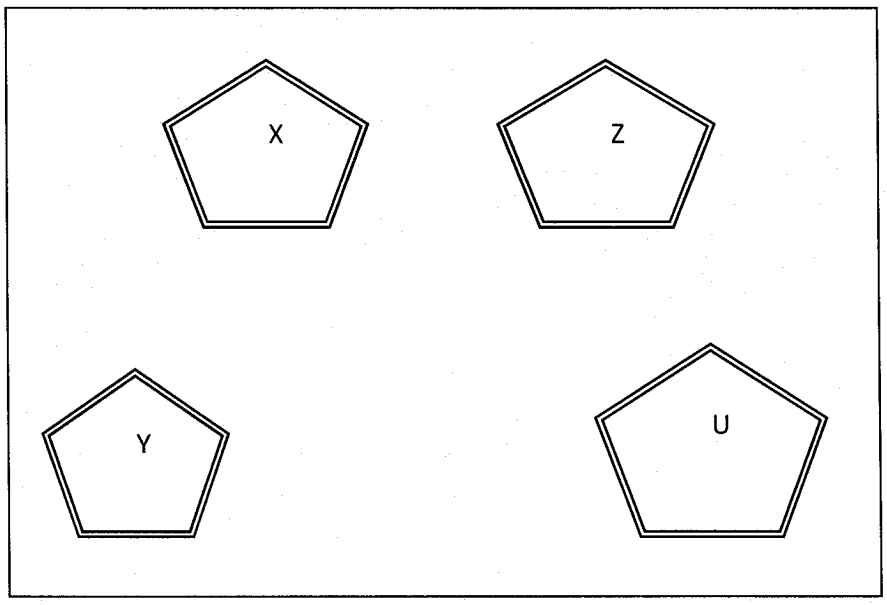
- Traverse the content of the list and push the odd numbers into a stack.
- Pop and display the content of the stack.

For example:
If the sample Content of the list is as follows:
N = [16, 91, 52, 43, 12, 65, 23, 87, 18, 15]

Sample Output of the code should be:
15 87 23 65 43 91

SECTION D

31. Quick Learn Organization has set up its new centre at Mangalore for its office and web based activities. The company compound has 4 buildings as shown in the diagram below: 5



Centre to centre distances between various buildings is as follows:

X to Y	50 m
Y to Z	150 m
Z to U	25 m
X to U	170 m
Y to U	125 m
X to Z	90 m

Number of computers in each building is as follows:

X Building	25
Y Building	50
Z Building	150
U 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 of this organization with a suitable reason.

(iii) Suggest the placement of the following devices with justification:
- Repeater
- Switch

(iv) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with a reasonably high speed.

(v) Suggest the type of network (out of LAN, MAN and WAN) to connect all the 4 buildings with a suitable reason.

32. The code given below inserts the following record in the table **books**: 5

Bno – integer
Title – string
Author – 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 **bookstore**.
- The details (Bno, Title, Author and Price) are to be accepted from the user.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the command that inserts the record in the table books.
Statement 5 – to add the record permanently in the database.

```
import _____ #Statement 1
def books_data( ):
   con1=ms.connect(_____) #statement 2
   mycursor=_____ #Statement 3
   bno=int(input("Enter Book Number :: "))
   title=input("Enter Book Title:: ")
   author=input("Enter Author Name :: ")
   price=int(input("Enter Price :: "))
   querry="insert into books values({},'{}', '{}',{})".format(bno,title,author,price)
   _____ #Statement 4
   _____ # Statement 5
   print("Data Added successfully")
```

OR

The code given below reads the following record from the table named **books** and displays only those records which have price greater than 1000:

Bno – integer
Title – string
Author – 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 **bookstore**.

Write the following missing statements to complete the code:
Statement 1 – to import package required
Statement 2 – to establish connection
Statement 3 – to form the cursor object
Statement 4 – to execute the query that extracts records of those books whose price is greater than 1000.
Statement 5 – to read the complete result of the query (records whose price is greater than 1000) into the object named data, from the table books in the database.

```
import _____ #Statement 1
def sql_data( ):
  con1=mys.connect(_____) #Statement 2
  mycursor=_____ #Statement 3
  print("Books with price greater than 1000 are : ")
  _____ #Statement 4
  data=_____ #Statement 5
  for i in data:
      print(i)
  print()
```

33. Give any one point of difference between a csv file and a text file. 5

Sneha is making a software on "Countries & their Capitals" in which various records are to be stored in **'Country.CSV'** file.
Write a Program in Python that defines and calls the following user defined functions:

(i) ADDREC( ) – To accept and add data of "Countries & their Capitals" to a CSV file 'Country.csv'. Each record consists of a list with field elements as **country** and **capital** to store Country and Capital respectively.

(ii) COUNTREC( ) – To count the number of records present in the CSV file named 'Country.CSV'.

OR

Give any one point of difference between a binary file and a text file.

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

(i) addrec( ) – To accept and add data of staff members to a CSV file **'staff.csv'**. Each record consists of a list with field elements as **sid, sname** and **salary** to store staff id, name and salary respectively.

(ii) searchrec( ) –To display the records of staff members whose salary is more than 7000.

SECTION E

34. **Table: ITEMS** 4

Code	Iname	Qty	Price
1001	Mouse	120	200
1002	Keyboard	50	200
1003	LCD	30	3000
1009	USB	200	100
1006	Hard Disk	50	1000

Based on the data given above answer the following questions:

(i) If 2 columns are deleted and 2 rows are added to the table ITEMS, what will be the new degree and cardinality of the above table?

(ii) Which field should be the primary key? Justify your answer.

(iii) Write the SQL statements to:
   a. Insert the following record into the table
      Code- 1007, Iname- 'Mother Board', Qty- 10, Price-5000.
   b. Decrease the Price of the item by 10% whose Iname begins with 'M'.

OR (Option for part iii only)

(iii) Write the SQL statements to:
   a. Delete the records of items whose price is more than 2000.
   b. Remove column **Qty** from the table.

35. Sunil has been given the following incomplete code for entering his details (Name, contact number and address) to a binary file "**details.dat**" and display the contents. Complete the missing code to open, create and display the file. 4

```
import _____ #Statement 1
mydata=[ ]
name=input("Enter Name:")
contactno=int(input("Enter contact number:"))
address=input("Enter address:")
mydata=[name,contactno,address]
f1=open("details.dat","wb")
pickle._____ # Statement 2
f1.close( )
f2=_____ # Statement 3
result=_____ # Statement 4
print(" The content of file :", result)
f2.close( )
```

(i) Name the module he should import in Statement 1.

(ii) Fill in the blank in Statement 2 with the function to write entire contents to file.

(iii) Fill in the blank in Statement 3 to open the file for displaying contents of file.

(iv) Fill in the blank in Statement 4 to read the contents of the file.

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