Time Allowed: 3 hours   Maximum 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 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.

Q.NO.	SECTION A	MARKS
1	Name the Python Library module which needs to be imported to invoke the following function – (i) lower( ) (ii) sin( )	1
2	_____ Functions are also known as fruitful functions.	1
3	Which function is used to remove leading and trailing whitespaces of a string?	1
4	What is the utility of built-in function help ()?	1
5	Name the function/method required to: (i) Check if a string contains only digits. (ii) To remove the item from the given position in the list.	1
6	Predict the output of following code snippet: Lst = [10,20,30,40,50,60,70,80,90] print(Lst[::3])	1
7	Which of the following term is immutable? a)Tuples b)Strings c)List d)Tuples and String	1
8	Write the output of the following: T1=('a')*3 print(T1) print(type(T1)) a)aaa; <class str> b)333; <class str> c)aaa;< 'str'> d)aaa;<class int>	1
9	Write the output of the following: T1=(1,2,3,4,5,6,7,8) print(T1[:]) a)(1,2,3,4,5,6,7,8) b)() c)(2,3,4,5,6,7,8) d)(1,2,3,4,5,6,7)	1
10	In which of the file mode existing data will be intact in binary file? a)ab b)a c)w d)wb	1
11	Which operator performs pattern matching in MYSQL? a) BETWEEN b) LIKE c) EXIST d) None of the mentioned	1
12	To fetch the multiple records from the result set you may use. ----------method in SQL? a) fetch() b) fetchmany() c) fetchmultiple() d) None of the mentioned	1
13	A system design to protect unauthorized to access to or from a private network is called-------------. a) Password b) Firewall c) Access wall d) Network Security	1
14	A Hub is --------------------. a) Broadcast Device b) Unicast Device c) Multicast Device d) None of the above	1

15	What will be the output of the following Python code?
	 def f1():
	     x=15
	     print(x)
	 x=12
	 f1()
	 a) Error b) 12 c) 15 d) 1512
		1

16	What is the use of tell() method in python? a) tells you the current position within the file b) tells you the end position within the file c) tells you the file is opened or not	1

	d) none of the mentioned	

	Q 17 and 18 are ASSERTION and REASONING based questions. Mark the correct choice as
	    a. Both A and R are true and R is the correct explanation for A
	    b. Both A and R are true and R is not the correct explanation for A
	    c. A is true but R is false
	    d. A is false but R is true	

17	Str1= "class" + "work" ASSERTION: Value of str1 will be "ClassWork". REASIONING: Operator '+' adds the operands, if both are numbers & concatenates the string if both operands are strings.	1
18	ASSERTION: CSV (Comma Separated Value) is a file format for data storage which looks like a text file. REASON: The information is organized with one record on each line and each field is separated by semi-colon.	1
	SECTION - B	

19	Vivek has written a code to input a number and check whether it is even or odd number. His code is having errors. Rewrite the correct code and underline the corrections made.
	Def checkNumber(N):
	    status=N%2
	    return
	num =int(input("enter a number to check:))
	k=checkNumber(num)
	if k=0:
	   Print("this is even number")
	else:
	    Print("this is odd number")
		2

20	Write two points of difference between bus topology and star topology. OR Briefly explain HTML and HTTP.	2

21	a. Find output generated by the following code:
	       mystr = "Hello I am a Human."
	       print(mystr[::-3])
	   b. Write the output of the code given below:
	       p=10
	       q=20
	       p*=q//3
	       p=q**2
	       q+=p
	        print(p,q)
		2

22	Differentiate between DDL and DML with one Example each.	2
23	a. Give the full form of the following: i. URL ii. FTP b. What is the use of HTTP?	2

24	Predict the output of the following code:
	def CALLME(n1=1,n2=2):
	    n1=n1*n2
	    n2+=2
	    print(n1,n2)
	CALLME()
	 CALLME(3)
	                      OR
	mylist = [2,14,54,22,17]
	tup = tuple(mylist)
	for i in tup:
	   print(i%3, end=",")
		2

25	Answer the following : i) Name the package imported for connecting Python with MySQL database.	2

	ii) What is the purpose of cursor object?	
	OR	
	What is primary key in MySQL database? Give an example.	
	Section-C	
26	Consider the following tables Trainer and Course:	3

<div align="center">Trainer</div>

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	15/10/1998	90000
102	ANAMIKA	DELHI	24/12/1994	80000
103	DEEPTI	CHANDIGARH	21/12/2001	82000
104	MEENAKSHI	DELHI	25/12/2002	78000
105	RICHA	MUMBAI	12/01/1996	95000
106	MANIPRABHA	CHENNAI	12/12/2001	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	02/07/2018	101
C202	ADCA	15000	15/07/2018	103
C203	DCA	10000	01/10/2018	102
C204	DDTP	9000	15/09/2018	104
C205	DHN	20000	01/08/2018	101
C206	O LEVEL	18000	25/07/2018	105

What will be the output of the following statement?
SELECT * FROM TRAINER NATURAL JOIN COURSE;
 b. Write the Outputs of the MySQL queries (i) to (iv) based on the given above tables:
 i. SELECT DISTINCT(CITY) FROM TRAINER WHERE SALARY>80000;
 ii. SELECT TID, COUNT(*), MAX(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
 iii. SELECT T.TNAME, C.CNAME FROM TRAINER T, COURSE C WHERE T.TID=C.TID AND T.FEES<10000;
 iv. SELECT COUNT(CITY),CITY FROM TRAINER GROUP BY CITY;

27	Write a method/ function SHOW_TODO() in python to read contents from a text file ABC.TXT and display those lines which have occurrence of the word ''TO'' or ''DO''. For example : If the content of the file is "THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK. WE ALL ARE EXPECTED TO DO HARD WORK. AFTER ALL EXPERIENCE COMES FROM HARDWORK." The method/function should display: THIS IS IMPORTANT TO NOTE THAT WE ALL ARE EXPECTED TO DO HARD WORK. OR Write a function linecount() in python which read a file 'data.txt' and count number of lines starts with character 'P'.	3
28	Write definition of a method/function AddOddEven(VALUES) to display sum of odd and even values separately from the list of VALUES. For example : If the VALUES contain [15, 26, 37, 10, 22, 13] The function should display Even Sum: 58 Odd Sum: 65	3

| 29 | Write SQL commands for (a) and (b) and write output for (c) on the basis of TRANSPORT table: | | | | | | | 3 |

Rtno	Area_overed	Capacity	Noofstudents	Distance	Transporter	Charges
1	Vasant kunj	100	120	10	Shivamtravels	100000
2	Hauz Khas	80	80	10	Anand travels	85000
3	Pitampura	60	55	30	Anand travels	60000
4	Rohini	100	90	35	Anand travels	100000
5	Yamuna Vihar	50	60	20	Bhalla Co.	55000
6	Krishna Nagar	70	80	30	Yadav Co.	80000
7	Vasundhara	100	110	20	Yadav Co.	100000
8	Paschim Vihar	40	40	20	Speed travels	55000
9	Saket	120	120	10	Speed travels	100000
10	Jank Puri	100	100	20	Kisan Tours	95000

a) To show all information of students where capacity is more than the no of student in order of rtno. b) To show area_covered for buses covering more than 20 km., but charges less than 80000. c) select sum(distance) from schoolbus where transporter= " Yadav Co.";

| 30 | Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a List of Book titles, considering them to act as push and pop operations of the Stack data structure.

<div align="center">OR</div>
Write a program to implement a stack for the students (studentno, name). Just implement Pop and display. | 3 |

<div align="center">Section-D</div>

| 31 | Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialised departments for Orthopedics, Neurology and Pediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. You, as a network expert, have to answer the queries as raised by them in (i) to (v). | 5 |

Administrative Office to Orthopedics Unit	55
Neurology Unit to Administrative Office	30
Orthopedics Unit to Neurology Unit	70
Pediatrics Unit to Neurology Unit	50
Pediatrics Unit to Administrative Office	40
Pediatrics Unit to Orthopedics Unit	110

Number of Computers installed at various locations are as follow:

Administrative Office	150
Orthopedics Unit	40
Pediatrics Unit	50
Neurology Unit	80

<div align="center">

Administrative Office		Orthopaedics Unit

Pediatrics Unit		Neurology Unit

</div>

    i.   Suggest the most suitable location to install the main server of this institution to get efficient connectivity.

    ii.   Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.

    iii.   Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following : Gateway, switch, Modem

    iv.   Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following : Topologies: Bus Topology, Star Topology Network Cable: Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable.

    v.   Suggest a system (hardware/software) to prevent unauthorized access to or from the

	network.	

32	(a) Write the output of following python code:
	
	``python
	def result(s):
	    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]
	        elif (s[i].isupper()):
	            m = m + s[i].lower()
	        else:
	            m = m + '#'
	    print(m)
	result('Cricket')
	``
	
	(b) Avni is trying to connect Python with MySQL for her project. Help her to write the python statement on the following:
	 i. Name the library, which should be imported to connect MySQL with Python.
	 ii. Name the function, used to run SQL query in Python.
	 iii. Write Python statement of connect function having the arguments values as :
	 Host name :192.168.11.111
	User : root
	Password: Admin
	Database : MYPROJECT
	
	 OR
	(a) Find the output
	
	``python
	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)
	``
	
	 b) Your friend Jagdish is writing a code to fetch data from a database Shop and table name Products using Python. He has written incomplete code. You have to help him write complete code:
	
	``python
	import _____ as m # Statement-1
	object1 = m.connect(host="localhost", user="root", password="root", database="Shop")
	object2 = object1._____ # Statement-2
	query = '''SELECT * FROM Products WHERE NAME LIKE "A%";'''
	object2._____(query) # Statement-3
	object1.close()
	``
		5

33	What is the advantage of using pickle module? Write a program to write into a CSV file "one.csv" Rollno, Name and Marks separated by comma. It should have header row and then take input from the user for all following rows. The format of the file should be as shown if user enters 2 records. Roll.No, Name, Marks 20, Ronit, 67 56, Nihir, 69 OR What is difference between tell() and seek() methods? Write a program to read all content of "student.csv" and display records of only those students who scored more than 80 marks. Records stored in students is in format : [Rollno, Name, Marks]	5

		Section-E		
34	ABC Gym has created a table TRAINER. Observe the table given below and answer the following questions accordingly.			4

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	15/10/1998	90000
102	ANAMIKA	DELHI	24/12/1994	80000
103	DEEPTI	CHANDIGARH	21/12/2001	82000
104	MEENAKSHI	DELHI	25/12/2002	78000
105	RICHA	MUMBAI	12/01/1996	95000
106	MANIPRABHA	CHENNAI	12/12/2001	69000

a. What is Degree and Cardinality of the above table?
b. Which field should be made as the primary key? Justify your answer.
c. Write the query to:
i. Insert a record: (107,Bhoomi,Delhi,2001-12-15,90000)
ii. Increase the salary by 1% for the trainers whose salary is more than 80000

OR

i.　　　Delete the record of Richa
ii.　　　Add new column remarks of VARCHAR type with 50 characters.

35	Priti of class 12 is writing a program to create a CSV file "emp.csv". She has written the following code to read the content of file emp.csv and display the employee record whose name begins from "S" also show no. of employee with first letter "S" out of total record. As a programmer, help her to successfully execute the given task.	1+1+2

Consider the following CSV file (emp.csv):
1,Peter,3500
 2,Scott,4000
3,Harry,5000
4,Michael,2500
5,Sam,4200

```
 import _____ # Line-1
def snames():
  with open(_____) as csvfile: # Line-2
   myreader = csv.___ (csvfile, delimiter=",") # Line-3
   count_rec=0
   count_s=0
   for row in myreader:
      if row[1][0].lower() == "s":
        print(row[0],",",row[1],",",row[2])
        count_s += 1
      count_rec += 1
    print(count_rec, count_s)
```
i.　　　What should be written in Line-1?
ii.　　　In which mode should Priti open the file to print the data?
iii.　　　What should be written in Line-2 and Line-3?