

MODEL TEST PAPER-III

CLASS XII

COMPUTER SCIENCE (083)

TIME: 3 hrs

M.M: 70

General Instructions:

- All questions are compulsory.
- Question paper is divided into 4 sections A, B, C and D.
 - ☞ Section A: Unit-1
 - ☞ Section B: Unit-2
 - ☞ Section C: Unit-3
 - ☞ Section D: Unit-4

1. (a) Name the Python Library modules which need to be imported to invoke the following functions: (1)
- (i) floor()
 - (ii) find()
- (b) Which of these is not a core data type? (1)
- (i) Lists
 - (ii) Dictionary
 - (iii) Tuples
 - (iv) Class
- (c) Suppose `list1 = [0.5 * x for x in range(0, 4)]`, what will be the contents of list1 out of the given options: (1)
- (i) [0, 1, 2, 3]
 - (ii) [0, 1, 2, 3, 4]
 - (iii) [0.0, 0.5, 1.0, 1.5]
 - (iv) [0.0, 0.5, 1.0, 1.5, 2.0]
- (d) What is a Python variable? Identify the variables that are invalid and state the reason. (2)
- Class, do, while, 4d, a+
- (e) Rewrite the following Python code after removing all syntax error(s). Underline the corrections done. (2)

```
def main():  
    r = input('enter any radius: ')  
    a = pi * math.pow(r,2)  
    print("Area = " + a)
```

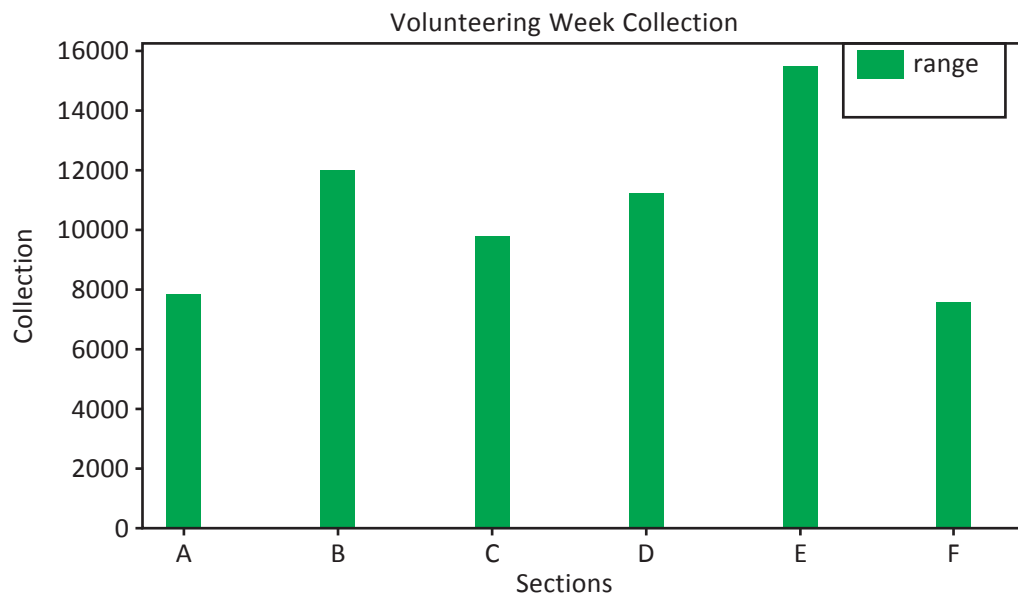
- (f) Find and write the output of the following Python code: (3)

```
def rec(x):  
    if(x>1):  
        return x*rec(x-2)  
    print(x)  
    return x  
print(rec(5))
```

- (g) Find and write the output of the following Python code: (2)

```
L1 = [500,800,600,200,900]  
START = 1  
SUM = 0  
for C in range(START,4):  
    SUM = SUM + L1[C]  
    print(C,":",SUM)  
    SUM = SUM + L1[0]*10  
print(SUM)
```

2. (a) Define Markers in a Pyplot graph. (1)
- (b) Which function allows you specify multiple setting for your chart/graph such as width, height etc. (1)
- (c) Consider the graph shown below: (1)



In the above figure, what will be the value of xticks?

- (d) Define two types of functions in Python. (1)
- (e) Write the statement to read two characters from a file object fileobj. (1)
- (f) Find and write the output of the following snippet: (2)

```
x = 50
def func():
    global x
    print('x is', x)
    x = 2
    print('Changed global x to', x)
func()
print('Value of x is', x)
```

- (g) Write the definition of a function Reverse(X) in Python to display the elements in reverse order such that each displayed element is four times the original element (element*4) of the List X in the following manner: (2)

Example:

If List X contains 7 integers as follows:

X[0]	X[1]	X[2]	X[3]	X[4]	X[5]	X[6]
4	6	9	12	5	8	7

After executing the function, the array content should be displayed as follows:

28 32 20 48 36 24 16

- (h) Write a user-defined function named Count() that will read the contents of text file named "Report.txt" and count the number of lines which start with either "I" or "M" and display the count. (2)

E.g. In the following paragraph, there are 3 lines starting with "I" or "M":

"India is the fastest growing economy. India is looking for more investments around the globe.

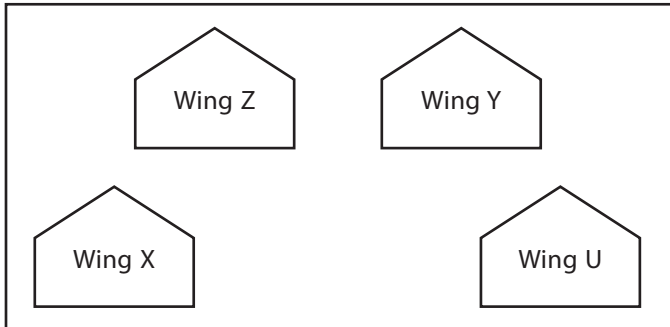
The whole world is looking at India as a great market.

Most of the Indians can foresee the heights that India is capable of reaching."

- (i) Consider the following sorted list: (3)
 [22, 54, 66, 90, 155, 178]
 Write the passes of binary search for searching the list for value 25 till the 3rd iteration.
- (j) Write AddCustomer(Customer) and DeleteCustomer(Customer) methods in Python to add a new Customer and delete a Customer from a List of CustomerNames, considering them to act as push and pop operations of the stack data structure. (4)

SECTION-B

3. (a) The last address of IP address represents _____. (1)
 (b) Routers are part of the _____ layer. (1)
 (c) All computers connected to the internet and wanting to use it for sending/receiving data must follow a common set of rules for communication called _____. (1)
 (d) A _____ is a device that forwards packets between networks by processing the routing information included in the packet. (1)
 (e) Expand the following terminologies: (2)
 (i) FTP
 (ii) SCP
 (iii) NFC
 (iv) IMAP
 (f) How is MAC address different from IP address? Why is IP address needed? (2)
 (g) What is cloud? State the significance of cloud computing. How is a private cloud different from a public cloud? (3)
 (h) ABC Pvt Ltd has set up its new Branch at Jammu for its office and web-based activities. It has 4 Wings of buildings as shown in the diagram: (4)



Center to center distance between various blocks:

Wing X to Wing Z	50 m
Wing Z to Wing Y	70 m
Wing & to Wing X	125 m
Wing & to Wing U	80 m
Wing X to Wing U	175 m
Wing Z to Wing U	90 m

Number of computers:

Wing X	50
Wing Z	30
Wing Y	150
Wing U	15

- (i) Suggest the most suitable connection between the Wings and topology.
 (ii) Suggest the most suitable place (i.e., Wing) to house the server of this organization with a suitable reason, with justification.

- (iii) Suggest the placement of the following devices with justification:
- Repeater
 - Hub/Switch
- (iv) The organization is planning to link its head office situated in Delhi with the offices at Jammu. Suggest an economic way to connect it; the company is ready to compromise on the speed of connectivity. Justify your answer.

SECTION-C

4. (a) Which function counts the total number of rows in a given column and ignores null and duplicate values? (1)
- (b) State the clause which combines all the records that have identical values in a particular field or a group of fields. (1)
- (c) Which connector is used for linking the database with Python code? (1)
- (d) Write the command used for modifying the records. (1)
- (e) List the differences between a flat file and csv file. (2)
- (f) How is having clause different from where clause? Explain with the help of an example. (2)
- (g) What are the different enabling technologies for IoT? (3)
- (h) Consider the table EXAM with details of marks. Write MySQL commands for the following questions: (4)

Table: EXAM

Adno	SName	Percentage	Clsection	Stream
R001	Sushant	90.2	12A	Science
R002	Vaidyanath	80.5	12B	Humanities
R003	Miara	68.9	12B	Science
R004	Niara	96.0	12A	Commerce
R005	Shinjini	88.9	12D	Commerce

- To display all information of the students of humanities in descending order of percentage.
- To display Adno, Name, Percentage and Stream of those students whose name starts with S and ends with t.
- To display SName, Percentage, Clsection of students who have highest percentage in each stream.
- To display details of students who have Percentage in the range of 80 and 90 (both inclusive) in decreasing order of Percentage.

SECTION-D

5. (a) In which year did India's IT Act come into existence? (1)
- (b) What is plagiarism? (1)
- (c) What are Creative Commons and GPL? (2)
- (d) Differentiate between open source and open data. (2)
- (e) What can be the gender and disability issues while teaching and using computers? (2)
- (f) An important factor of privacy is consumer consent. Comment. (2)