

## COMPUTER SCIENCE WITH PYTHON NEW (083) BLUE PRINT

Type of Questions	Marks Per Question	Total Number of Questions	Total Marks
VSA: Very Short Answer Type	1	18	18
SA : Short Answer Type 1	2	14	28
SA : Short Answer Type 2	3	04	12
LA : Long Answer Type	4	03	12
<b>Total</b>		<b>39</b>	<b>70</b>

### BLUE PRINT (Topic Wise)

Topic / Unit	VSA (1 mark)	SA I (2 marks)	SA II (3 marks)	LA (4 marks)	Total
Programming and Computational Thinking	8(8)	6(12)	2(6)	1(4)	17(30)
Computer Networks	4(4)	2(4)	1(3)	1(4)	8(15)
Data Management	4(4)	2(4)	1(3)	1(4)	8(15)
Society, Law and Ethics	2(2)	4(8)	-	-	6(10)
<b>Total</b>	<b>18(18)</b>	<b>14(28)</b>	<b>04(12)</b>	3(12)	<b>39(70)</b>

MARKING SCHEME

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

SECTION:A

Q1. a) Which of the following is a valid logical operator? 1

(i) and           (ii) >   (iii) ==           (iv) //

Ans: (i) and

b) Write the type of tokens from the following: 1

(i)break (ii) sum\_no

Ans: (i) Keyword       (ii) identifier

(1/2 mark each for correction)

c) Name the Python Library modules which need to be imported to invoke the following functions: (i) cos() (ii) random () 1

Ans: (i)math module       (ii) random module

(1/2 mark each for correction)

d) Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. 2

```
def checkval:  
x = input("Enter a number")  
if x % 2 = 0:  
print x,"is even"  
else if x<0:  
print x,"should be positive"  
else;  
print x,"is odd"
```

Ans: Corrected code:

```
def checkval():  
x = int(input("Enter a number:"))  
if x % 2 == 0:  
print(x, " is even")  
elif x<0:  
print(x, "should be positive")
```

else:  
print(x, "is odd")

(1/2 mark each for correction)

e) Find the output of the following:

```
def main ( ) :  
    Moves=[5, 10, 15, 20]  
    Queen=Moves  
    Moves[2]+=10  
    L=Len(Moves)  
    for i in range (L)  
        print "Now@", Queen[L-i-1], "#", Moves [i]
```

2

Ans: Now @ 20 # 5  
Now @ 25 # 10  
Now @ 10 # 25  
Now @ 5 # 20

(1/2 mark each for correct line)

f) Find and write the output of the following python code:

3

```
def Change(P ,Q=30):  
    P=P+Q  
    Q=P-Q  
    print( P,"#",Q)  
    return (P)
```

R=150 S=100

R=Change(R,S)

print(R, "#",S)

S=Change(S)

Ans: 250 # 150

250 # 100

130 # 100

(1 mark each for correct line)

g) Study the following program and select the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable Y.

2

```
import random  
X= random.random()  
Y= random.randint(0,3)  
print(int(X),":",Y+int(X))
```

(i) 0:0      (ii) 1:6      (iii) 2:4      (iv) 0:3

Ans: Only (i) is the possible outputs. Minimum value that can be assigned is – Y = 0.

Maximum value that can be assigned is – Y = 2

Q2. a) What do you mean by term decision making? 1

Ans: Decision making means it will decide statement will be execute or not depends upon decision making.

b) Which is the correct form of declaration of dictionary? 1

- (i) Day={1:'monday',2:'tuesday',3:'wednesday'}
- (ii) Day=(1;'monday',2;'tuesday',3;'wednesday')
- (iii) Day=[1:'monday',2:'tuesday',3:'wednesday']
- (iv) Day={1'monday',2'tuesday',3'wednesday'}

Ans: (i) Day={1:'monday',2:'tuesday',3:'wednesday'}  
(1mark for correct answer)

c) Identify the valid declaration of L: 1

L = [1, 23, 'hi', 6].

- (i) list (ii) dictionary (iii) array (iv) tuple

Ans: (i) list

d) Find and write the output of the following python code: 1

```
x = "pqrst"
i = "p"
while i in x:
    print(i, end = " ")
```

Ans: ppppp----- OR infinite loop  
(1 mark for correct answer)

e) Which keyword is used for iteration statement? 1

Ans: (i) for and while (1/2 mark for correct answer)

f) What are the rules for local and global variables in python? Give a suitable example of each. 2

Ans: A variable that are only referenced inside a function are implicitly global. If a variable is ever assigned a new value inside the function, the variable is implicitly local and we need to explicitly declare it as global.

(1 mark for correct answer)

g) Observe the following code and answer the questions that follow: 2

```
File = open("Mydata","a") #Blank1 File.close()
```

i) What type (Text/Binary) of file is Mydata?

ii) Fill in Blank 1 with a statement to write "ABC" in the file "Mydata".

Ans: (i) Text File (ii) File.write("ABC")

(1 mark for correct answer)

OR

```
import matplotlib.pyplot as plt
model=('i20','Grandi10','Creta') #any model of cars
sale=[123,174,93]
plt.bar(y_pos,sale,align='center')
plt.xlabel('Month-June')
plt.ylabel('Sale done')
plt.title("Sales Bar Graph")
plt.show()
(1/2 mark for correct plt.bar)
(1/2 mark for each correct xlabel and ylabel)
(1/2 mark for plt.show)
```

h) A text file contains alphanumeric txt(say an.txt). Write a program that reads text file and

prints only the numbers or digits from the file.

```
Ans: f=open("an.txt","r")
for line in f:
    words=line.split()
    for i in words:
        for letter in i:
            if(letter.isdigit()):
                print(letter)
```

OR

```
def DISPLAYWORDS():
    c=0
    file=open('STORY.TXT','r')
    line = file.read()
    word = line.split()
    for w in word:
        if len(w)<4:
            print( w)
    file.close()
    (½ Mark for opening the file)
    (½ Mark for reading line and/or splitting)
    (½ Mark for checking condition)
    (½ Mark for printing word)
```

i) Write recursive code to compute and print sum of squares of n numbers. value of n is passed as parameter. 3

```
Ans: def sqsum():
    if n==1:
        return 1
    return n*n +sqsum(n-1)
#__main__
n=int(input("enter value of n:"))
print(sqsum(n))
```

OR

```
def recurfactorial(n):
    if n == 1:
        return n
    else:
        return n*recurfactorial(n-1)
```

```
num = int(input("Enter a number: "))
if num < 0:
    print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
```

```
print("The factorial of",num,"is",recurfactorial(num))
```

(2 marks for correct recursive function)

(1 mark for invoking)

j) Give the necessary declaration of a list implemented stack containing numeric type data also. Write user defined function to pop a number from stack. 4

Ans: stack=list()

```
def pop(stack,top):
```

```
    if not stack:
```

```
        print("stack is empty")
```

```
    else:
```

```
        num=stack.pop()
```

```
        top=top-1
```

```
    print("Value deleted from stack is",num)
```

```
    return top
```

OR

(j) (i) 55

(j) (ii) A B D \*\* + E F - / G +

#### SECTION:-B

Q3.a) .....cloud services use by home user or small business owner. 1

Ans: public cloud (1 mark for correct answer)

b) .....displays the IP address, subnet mask, and default gateway for all adapters. 1

Ans: ipconfig/all (1 mark for correct answer)

c) 10:B5:03:63:2E:FC is example of .....address. 1

Ans: physical address/hardware/NIC address (1 mark for correct answer)

d) .....will translate domain names into IP addresses. 1

Ans: Domain Name System (1 mark for correct answer)

e) Give the full forms of the following: (i)VoIP (ii) SMTP (iii) IMAP (iv)HTTP 2

Ans:(i) Voice over Internet Protocol (ii) Simple Mail Transfer Protocol

(iii) Internet Message access Protocol (iv)Hyper Text Transfer protocol

(1/2mark for correct answer)

f) Write any two advantage and two disadvantage of fiber optics cable. 2

Ans: Advantages:

- It is free from EMI since no electrical signals are carried

It offers secure and high-speed transmission for a very long distance at a stretch

Disadvantages:

- It is the most expensive cable and is quite fragile.

- It is not suitable for domestic purposes due to its high maintenance cost.

g) Identify the type of cyber crime for the following situations: 3

i) A person complains that Rs. 4.25 lacs have been fraudulently stolen from his/her account online via some online transactions in two days using NET BANKING.

ii) A person complaints that his/her debit/credit card is safe with him still some body has done shopping/ATM transaction on this card.

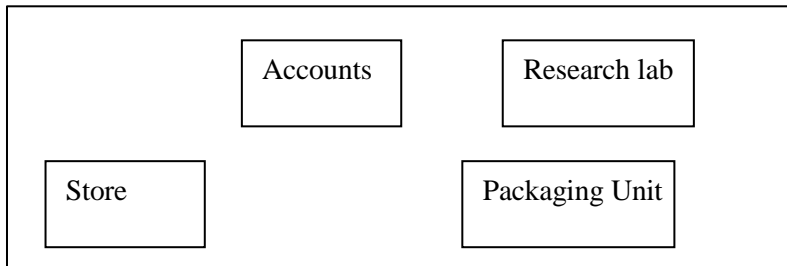
iii) A person complaints that somebody has created a fake profile on Facebook and defaming his/her character with abusive comments and pictures.

Ans:(i) Bank Fraud (ii)Identity Theft (iii)Cyber Stalking

(1 mark for each correct answer)

h) Amazon Centre has set up its new Centre in Dubai. It has four buildings as shown in the diagram given below:

4



Distances between various buildings are as follows:

Accounts to Research Lab	55 m
Accounts to Store	150 m
Store to Packaging Unit	160 m
Packaging Unit to Research	60 m
Accounts to Packaging Unit	125 m
Store to Research Lab	180 m

Number of computers:

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:

- Suggest the type of network established between the buildings.
- Suggest the most suitable place (i.e., building) to house the server of this organization.
- Suggest the placement of the following devices with justification: (a) Repeater (b) Hub/Switch
- Suggest a system (hardware/software) to prevent unauthorized access to or from the network.

Ans: (i) LAN (Local Area Network)

(ii) Research Lab as it has the maximum number of computers.

(iii) Repeater: It should be placed between Accounts and Packaging Unit, Accounts to Research Lab, Store to Research Lab and Accounts to Packaging Unit.

Switch should be placed in each of the buildings for better traffic management.

(iv) Firewall.

(1 mark for each correct answer)

SECTION:C

Q4.a) Which key word is used to sort the records of a table in descending order? 1

Ans: DESC

(1 mark for correct answer )

b) Which method is used to retrieve single row? 1

Ans: fetchone() (1 mark for correct answer )

c) Which command is used to modify the physical structure of table? 1

Ans: ALTER TABLE NAME (1 mark for correct answer )

d) Which operator is used to match the pattern of string and characters? 1

Ans: Like (1 mark for correct answer)

e) Differentiate between Degree and Cardinality giving example.

2

Ans:

Degree : Number of columns in a table

Cardinality : Number of rows in a table

( 1 mark for correct definition and 1 mark for example )

f) Write a MySQL-Python connectivity to retrieve data, one record at a time, from city table for employees with id less than 10.

2

Ans: import MySQLdb as my

try:

```
db = my.connect(host="localhost",user="root", passwd="", database="India")
```

```
cursor = db.cursor()
```

```
sql = "select * from city where id < 10" number_of_rows = cursor.execute(sql)
```

```
print(cursor.fetchone()) # fetch the first row
```

```
only db.close()
```

except my.DataError as e:

```
print("DataError") print(e)
```

g) Table COACHING is shown below. Write commands in SQL for (i) to (v) and show the output for (vi) and (vii).

7

ID	NAME	AGE	CITY	FEE	PHONE
P1	SAMEER	34	DELHI	45000	9811076656
P2	ARYAN	35	MUMBAI	54000	9911343989
P4	RAM	34	CHENNAI	42000	9810593578
P6	PREMLATA	36	DELHI	60000	9910139987
P7	SHIKHA	36	INDORE	34000	9912139456
P8	RADHA	33	DELHI	23000	8110668888

i) To display name in descending order whose age is more than 23.

ii) To find the average fee grouped by age from coaching table.

iii) To find all details from coaching table where fee is between 30000 and 40000.

iv) To display ID and Name and city from coaching relation who's name starts with 'S'

v) select age, count(city) from coaching group by age;

vi) select city, sum(fee) from coaching where age in (34,36) group by city;

vii) Select name, city from coaching where name like "\_ R%";

Ans: (i) select name from coaching where age>23 order by name desc;

(ii)select avg(fee) from coaching group by age;

(iii) Select \* from coaching table where fee is between 30000 and 40000;

(iv)Select ID,Name,City from coaching where name like 'S%';

(v) age count(city)

33 1

34 2

35 1

36 2

(vi) city sum(fee)

CHENNAI 42000

DELHI 105000

INDORE 34000



(vii) name	city
ARYAN	MUMBAI
PREMLATA	DELHI

**SECTION:D**

**Q5.a) What are the proper methods and steps for the disposal of used electronic items? 1**

**Ans: Explanation about any methods like:**

**Landfilling,Acid Bath,Incineration,Recycling of e-waste,•Reuse of electronic devices**

**(b)What are Intellectual Property Rights (IPR)? 1**

**Ans: IPR is a general term covering patents, copyright, trademark, industrial designs, geographical indications, layout design of integrated circuits, undisclosed information (trade - secrets) and new plant varieties.**

**(c)How can we recycle e-waste safely? 2**

**Ans: (i)Use a certified e-waste recycler.**

**(ii) Visit civic institutions. Check with your local government, schools and**

**(iii) universities for additional responsible recycling options.Explore retail options.**

**(iv) Donate your electronics**

**(d)What is meant by the term Plagiarism? 2**

**Ans: Plagiarism is stealing someone else’s intellectual work and representing it as your own work without citing the source of information.**

**(e)Write any two categories of cyber crime. 2**

**Ans: Cyber crime encompasses a wide range of activities, but these can generally be broken into two categories:**

**•Crimes that target computer networks or devices: Such types of crimes include viruses and denial-of-service (DoS) attacks.**

**•Crimes that use computer networks to advance other criminal activities: These types of crimes include cyber stalking, phishing and fraud or identity theft.**

**(f)How does phishing different from eavesdropping? 2**

**Ans: Phishing is a fraudulent attempt to obtain sensitive information such as usernames, passwords, and credit card details (and money), often for malicious reasons, by disguising as a trustworthy entity in an electronic communication. Phishing is typically carried out by email spoofing or instant messaging, and it often directs users to enter personal information at a fake website, the look and feel of which is identical to the legitimate one and the only difference is the URL of the website in question**