SAMPLE QUESTION PAPER–II
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

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1. (a) Identify and write the name of the module to which the following functions belong: (1)
   (i) ceil()
   (ii) findall()

Ans. (i) ceil() – math module
   (ii) findall() – re module

(b) Which of the following can be used as valid variable identifier(s) in Python? (1)
   My.file, _count, For, 2digits, 4thSu, Total, Number#, Name1

Ans. Valid Identifier:- _count, For, Total, Name1

(c) Find the output of the following code: (1)

```
def CALLME(n1=1, n2=2):
    n1=n1*n2
    n2+=2
    print(n1, n2)
CALLME()
CALLME(2,1)
CALLME(3)
```

Ans. 2 4
2 3
6 4

(d) Which of the following can be used as valid variable identifier(s) in Python? (2)
   (i) 4thSum
   (ii) Total
   (iii) Number#
   (iv) Data

Ans. (ii) Total (iv) Data

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

```
TXT = ["20","50","30","40"]
CNT = 3
TOTAL = 0
for C in [7,5,4,6]:
    T = TXT[CNT]
    TOTAL = float(T) + C
    print(TOTAL)
    CNT -= 1
```

Ans. 47.0
35.0
54.0
26.0

(f) Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. (3)

```
STRING=""HAPPY NEW YEAR"
for S in range[0,8]:
print STRING(S)
print S+STRING
```

Ans.
```
STRING = "HAPPY NEW YEAR"
for S in range(0,14):
     print(STRING[S])
     print(S,STRING)
```

(g) What output will be generated when the following Python code is executed? (2)

```
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()
```

Ans. `[11, 10, 9, 8, 7, 4]`

2. (a) What does stdin, stdout represent? (1)

Ans. stdin represents standard input device and stdout represents standard output device which are represented as files.

(b) What problem occurs with the following code on execution: (1)

```
X=40
while X < 50:
    print(X)
```

Ans. The given code does not have the incrementing value of X, thus the loop becomes endless.

(c) Which module needs to be imported for showing data in chart form? (1)

Ans. matplotlib

(d) Rewrite the following Python code after removing all syntax error(s). Underline the corrections done. (1)

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

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

(e) Write down name of functions to create line chart and bar chart. (1)

Ans. plot(), scatter(), bar(), barh() etc

(f) Study the following program and select the possible output(s) from options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to variable Y. (2)

```
import random
X= random.random()
Y= random.randint(0,4)
print(int(X),":",Y+int(X))
```

  (i) 0 : 0   (ii) 1 : 6

(iii) 2 : 4   (iv) 0 : 3

Ans. (i) and (iv) are the possible outputs. Minimum value that can be assigned is – Y = 0. Maximum value that can be assigned is – Y = 3.

(g) List one similarity and one difference between List and Dictionary data type. (2)

Ans. Similarity: Both List and Dictionary are mutable data types.

    Dissimilarity: List is a sequential data type, *i.e.*, it is indexed. Dictionary is a mapping data type. It consists of key: value pair.

For example, L = [1, 2, 3, 4, 5] is a list.

D = {1:"Ajay", 2:"Prashant", 4:"Himani"} is a dictionary where 1, 2, and 4 are keys and "Ajay", "Prashant", "Himani" are their corresponding values.

(h) Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction: (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")
```

(i) Find the output of the following Python program: (3)

```
def makenew(mystr):
    newstr = ""
    count = 0
    for i in mystr:
        if count%2 != 0:
            newstr = newstr + str(count)
        else:
            if i.islower():
                newstr = newstr + i.upper()
            else:
                newstr = newstr + i
        count += 1
    newstr = newstr + mystr[:1]
    print("The new string is:", newstr)
makenew("sTUdeNT")
```

Ans. The new string is: S1U3E5Ts

(j) Write a program to read data from data file in read mode and count the particular word occurrences in given string, number of times in Python. (4)

Ans.
```
def compute(num):
    f=open("test.txt","r")
    read=f.readlines()
    f.close()
    #The variable has been created to show the number of types the loop runs
    times=0
    #The variable has been created to show the number of types the loop runs
    times2=0
    chk=input("Enter String to search:")
    count=0
    for sentence in read:
        line=sentence.split()
        times+=1
    for each in line:
        line2=each
        times2+=1
        if chk==line2:
            count+=1
    print("The search String:", chk, "is present:", count, "times")
    print(times)
    print(times2)
```

SECTION−B

3. (a) DNS is the abbreviation of _____ . (1)

Ans. Domain Name System

(b) Each IP packet must contain _____ address. (1)

Ans. Source and Destination

(c) _____ provides a connection-oriented reliable service for sending messages. (1)

Ans. TCP (Transmission Control Protocol)

(d) _____ is a device that forwards data packets along networks. (1)

Ans. Router

(e) Expand the following: (2)
   (i) URL
   (ii) ADSL
   (iii) SCP
   (iv) SMTP

Ans. (i) Uniform Resource Locator
   (ii) Asymmetric Digital Subscriber Line
   (iii) Session Control Protocol
   (iv) Simple Mail Transfer Protocol

(f) Write down the differences between private cloud and public cloud. (2)

Ans.

Public Cloud	Private Cloud
Public cloud refers to a common cloud service made available to multiple subscribers.	Consists of computing resources used exclusively owned by one business or organization.
Cloud resources are owned and operated by third party cloud service provider and delivered over the internet.	Services and infrastructure are always maintained on a private network and the hardware and software are dedicated solely to one organization.
Microsoft Azure, Google drive, Amazon Cloud Drive, iCloud etc.	Used by Government agencies, financial institutions, mid- and large-sized organization

(g) Write the purpose of following commands: (3)
   (i) whois
    (ii) ipconfig
    (iii) nslookup

Ans. (i) **whois:** Lookup tool finds contact information for the owner of a specified IP address. The ipwhois Lookup tool displays as much information as possible for a given IP address.

    (ii) **ipconfig:** In Windows, ipconfig is a console application designed to run from the Windows command prompt. This utility allows you to get the IP address information of a Windows computer. It also allows some control over active TCP/IP connections.

    (iii) **nslookup:** It is a network administration command-line tool available for many computer operating systems. It is used for querying the Domain Name System (DNS) to obtain domain name or IP address mapping information.

(h) Sony has set up its Branch at Srinagar for its office and web-based activities. It has 4 Zones of buildings as shown in the diagram: (4)
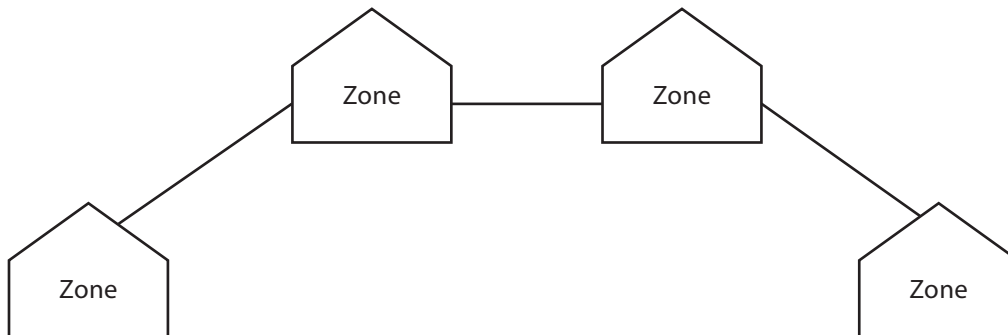
Branch-to-branch distance is:

Zone X to Zone Z	40 m
Zone Z to Zone Y	60 m
Zone Y to Zone X	135 m
Zone Y to Zone U	70 m
Zone X to Zone U	165 m
Zone Z to Zone U	80 m

Number of Computers:

Zone X	50
Zone Z	130
Zone Y	40
Zone U	15

    (i) Suggest the most suitable place (*i.e.*, Zone) to house the ERP and BI Server of this organization with a suitable reason.

    (ii) Suggest the placement of the following devices with justification:
   (a) Repeater
       (b) Hub/Switch

    (iii) Which is the most economic type of cable for the selected topology?

Ans. (i) The most suitable place (i.e., Zone) to house the ERP and BI Server is Zone Z as it has the most number of computers; thus, cabling cost will be reduced and most traffic will be local.

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

       (a) Repeater: As per the suggested layout, separate repeaters need not be installed as each building/zone will be having a hub that acts as a repeater.
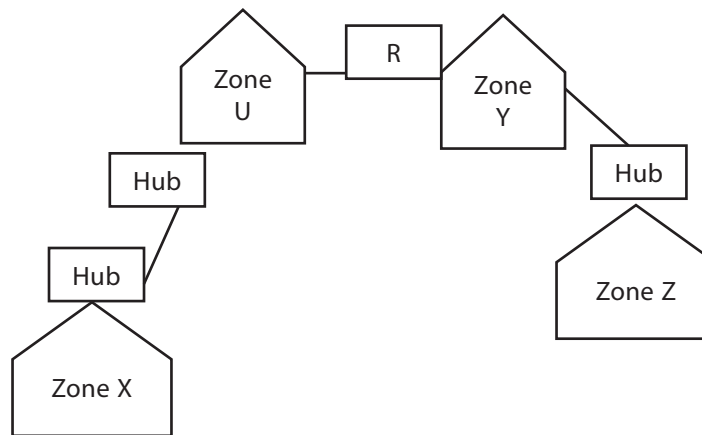
Hub/switch should be placed in each zone

Ans. (iii) An economic type of cable is Dial-up or broadband as it can connect two computers at an economic rate though it provides lesser speed than other expensive methods.

SECTION–C

4. (a) In Django, whenever a web client has to access a web page, it makes a _____request and sends URL of the web page. (1)

Ans. GET

(b) Which command is used to create a new application in Django project? (1)

Ans. python manage.py startapp appname.

(c) What is the name of a special control structure that facilitates the row-by-row processing of records in the result set during Python-MySQL connectivity? (1)

Ans. Database cursor.

(d) Which clause is used to remove the duplicating rows of the table in SQL? (1)

Ans. DISTINCT

(e) startproject command creates four basic Django projects in Directory. Write any two file names.(2)

Ans. The startproject command creates a basic Django project directory structure with the following files:
- manage.py
- settings.py

(f) Write the specific purpose of functions used in plotting: (2)
   (i) plot()
   (ii) Legend()

Ans. (i) plot(): A line chart or line graph can be created using the plot() function available in pyplot library. For example, the basic syntax for creating line plots is plt.plot(x,y), where x and y are the points or specify the (x, y) pairs that form the line.

(ii) Legend(): legend is the text or string that "has to be read" to understand the graph. Legends are used in line graphs to explain the function or the values underlying the different lines of the graph.

(g) Consider a database LOANS with the following table: (3)

Table: LOANS

AccNo	CUST_NAME	Loan_Amount	Instalments	Int_Rate	Start_Date	Interest
1	R.K. Gupta	300000	36	12.00	19-07-2009	1200
2	S.P. Sharma	500000	48	10.00	22-03-2008	1800
3	K.P. Jain	300000	36	NULL	08-03-2007	1600
4	M.P. Yadav	800000	60	10.00	06-12-2008	2250
5	S.P. Sinha	200000	36	12.50	03-01-2010	4500
6	P. Sharma	700000	60	12.50	05-06-2008	3500
7	K.S. Dhall	500000	48	NULL	05-03-2008	3800

Now answer the following questions:

(i) Display the sum of all Loan Amounts whose Interest rate is greater than 10.

Ans. Select sum(Loan_Amount) from LOANS where Interest >10;

(ii) Display the Maximum Interest from Loans table.

Ans. Select max(Interest) from LOANS;

(iii) Display the count of all loan holders whose names are ending with 'Sharma'.

Ans. Select count(*) from LOANS where Cust_Name Like '%Sharma';

(h) Write SQL queries for (i) to (iii) and find outputs for SQL query (iv) which are based on the table. (4)

Table: TRANSACT

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	101	12000	Deposit	2017-11-06

(i) To display minimum amount transaction from the table.

Ans. select min(amount) from Transact;

(ii) To display total amount withdrawn from table.

Ans. select sum(amount) from Transact where type = "Withdraw";

(iii) To display ANO, DOT, AMOUNT for maximum amount transaction.

Ans. select ANO, DOT, AMOUNT from Transact where AMOUNT = max(AMOUNT);

(iv) SELECT ANO, COUNT(*), MIN(AMOUNT) FROM TRANSACT
GROUP BY ANO HAVING COUNT(*)> 1

Ans. ANO   COUNT(*)   MIN(AMOUNT)

101   2   2500

103   2   1000

SELECT COUNT(*), SUM(AMOUNT) FROM TRANSACT

WHERE DOT <= '2017-06-01';

 COUNT(*)   SUM(AMOUNT)

       2   5000

SECTION−D

5. (a) What does the term "Intellectual Property Rights" covers? (1)

Ans. The term "Intellectual Property Rights" covers Copyrights, Trademarks and Patents.

(b) Vinod is preparing financial analysis report of its organisation. Can he copy and paste information from the Internet for reference in his report? (1)

Ans. Yes, he can do this but only after giving the reference to all the sources, otherwise it will be treated as copyright violation.

(c) What are the environmental issues of e-waste? (2)

Ans. E-waste, or electronic waste, is waste from all sorts of electronics ranging from computers and mobile phones, to household electronics such as food processors, pressure cookers, etc.

The effects of improper disposal of this e-waste on the environment are little known; however, damage to the atmosphere is one of the biggest environmental impacts of e-waste.

(d) What do you understand by the term Plagiarism? Write two software used as Plagiarism checker. (2)

Ans. Plagiarism is "copying and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work. Plagiarism is considered academic dishonesty and a breach of journalistic ethics.

The software available for Plagiarism checker are:

(i) DupliChecker

(ii) Grammarly

(iii) Paperrater

(iv) Plagiarisma

(e) List down some points about societal changes introduced by technology. (2)

Ans. Technology is the application of scientific knowledge to the making of tools to solve specific problems. Technological advances such as automobiles, airplanes, radio, television, cellular phones, computers, modems, and fax machines have brought major advances and changes to the world.

(f) What do you understand by Computer ethics? (2)

Ans. Computer ethics are a set of moral principles that govern the behaviour of a group or an individual and regulate the use of computers. These include intellectual property rights (such as copyrighted electronic content), privacy concerns, and how computers affect our society.