مـــدرسـة دلهـــي الخـاصـة ذ.م.م.
DELHI PRIVATE SCHOOL L.L.C.
Affiliated to C.B.S.E., DELHI
(Approved & Recognized By Ministry of Education - United Arab Emirates)
DPS SHARJAH

HY/IPCQP/1222/C **22-SEP-2022**

HALF YEARLY EXAMINATION (2022-23)

Subject: INFORMATICS PRACTICES (C) **Max. Marks:70**

Grade: XII **Time:3 Hrs.**

Name: **Section:** **Roll No:**

General Instructions:

- **The paper is divided into 3 Sections- A, B and C.**
- **Section A, consists of Question 1 to 16 and each carry 1 marks.**
- **Section B, consists of Question number 17 to 31 each carry 2 marks**
- **Section C, consists of Question number 32 to 34 and each carry 3 marks.**
- **Section D, consists of Question number 35 to 37 and each carry 5 marks.**
- **Attempt all Questions.**
- **The paper contains 7 pages.**

Section A (1 mark each)

1. Which of the following is not true for Series in Pandas

a) One dimensional data structure
b) Stores heterogenous data
c) Can store strings, integers and floating point numbers.
d) Data is mutable but size is not mutable.

2. Given the following Series S1 and S2:

S1	S2
A 10	A 80
B 40	B 20
C 34	C 74
D 60	D 90

Write the command to find the sum of the squares of corresponding terms of both the series

3. What will be the output for the following code?

```
import pandas as pd
S = pd. Series([1,2,3,4,5],index = ['a', 'b', 'c', 'd', 'e'])
print ( s[2] )
```

a) 1
b) 2
c) 3
d) 4

4. Which of the following is not an intellectual property?

a) A poem written by a poet
b) An original painting made by a painter
c) Trademark of a Company
d) A remixed song

5. Muskaan is working for a website for storing the flight details. The details change very frequently. What kind of webpage, it can be

a) Static Webpage
b) Dynamic Webpage

Justify your answer.

6. An organisation purchases new computers every year and dumps the old ones into the local dumping yard. Write the name of the most appropriate category of waste that the organisation is creating every year, out of the following options

a) Solid Waste
b) Commercial Waste
c) E-Waste
d) Business Waste

7. Data which has no restriction of usage and is freely available to everyone under Intellectual Property Rights is categorised as

a) Open Source
b) Open Data
c) Open Content
d) Open Education

8. What out of the following, you will use to have an audio-visual chat with an expert sitting in a faraway place to fix-up a technical issue:

a) email
b) VOIP
c) Telnet
d) FTP

9. What will be the output of the following code

```
import pandas as pd
data = {'Name':['Tom', 'Jack', 'Steve', 'Ricky'],'Age':[28,34,29,42]}
df = pd.DataFrame(data, index=['rank1','rank2','rank3','rank4'])
print(df)
```

10. Which of the following functions is used to create a line chart ?

a) line( )
b) plot( )
c) chart()
d) plotline( )

11.

```
import matplotlib.pyplot as plt
x = [ 10, 20, 30, 40, 50]
y = [65, 98, 170, 220, 310]
plt.xlabel('Overs')
plt.ylabel('Runs Scored')
plt.title('Over wise Runs Scored \n India Vs England')
plt.plot(x,y)
plt.show()
```

Give the output of the above code.

12. How do you change the line style to dashed using pyplot

a) linestyle=’dashed’
b) style=’dashed’
c) linefeed=’dashed’
d) None of the above.

13. What is a cookie?

14. What is a personal area network?

15. Write the full form of following

a) Nan
b) Pandas

16. State whether True or False :

i. Cyber Law can be generalized as "Law of Internet" **.**

ii. Open Source Software means only that the software is free of cost.

Section B (2 marks each)

17. WAPS to create a series from below dictionary
{1:"Apple",2:"Banana",3:"Kiwi",4:"Orange"}

18. Given the series A as shown below

A 7600
B 8900
C 40000
D 23000

Why is the following code producing an error?

```
import pandas as pd
A.index=range(0,5)
print(A)
```

Write the corrected code.

19. A mail sent to large number of people without their consent is called _____.
How can you avoid above?

20. Consider the following scenario and answer the questions which follow :

''A student is expected to write a research paper on a topic. The student had a friend who took a similar class five years ago. The student asks his older friend for a copy of his paper and then takes the paper and submits the entire paper as his own research work.''

(i) Which of the following activities appropriately categorizes the act of the writer

(A) Plagiarism
(B) Spamming
(C) Virus
(D) Phishing

(ii) Which kind of offense out of the following is made by the student ?

(A) Cyber Crime
(B) Civil Crime
(C) Violation of Intellectual Property Rights
(D) Spamming

21. What happens to the Network with Star topology if the following happens :

(i) One of the computers on the network fails ?

(ii) The central hub or switch to which all computers are connected, fails

22. What do you understand by Net Ettiquetes? Explain any two such ettiquetes.

23. Differentiate between hub and switch. Which among them is an intelligent device?

24. Jai is an IT expert and a freelancer. He recently used his skills to access the Administrator password for the network server of Megatech Corpn Ltd. and provided confidential data of the organization to its Director, informing him about the vulnerability of their network security.

Out of the following options (a) to (d), which one most appropriately defines Jai ? 2 Justify the reason for your chosen option :

a) Hacker
b) Cracker
c) Operator
d) Network Admin

25. Using the dataframe given below, the command to print the records of students aged 20 is

	Name	Age	Mode
0	Reeta	20	Onsite
1	Meeta	22	Online
2	Geeta	22	Online
3	Neeta	20	Onsite

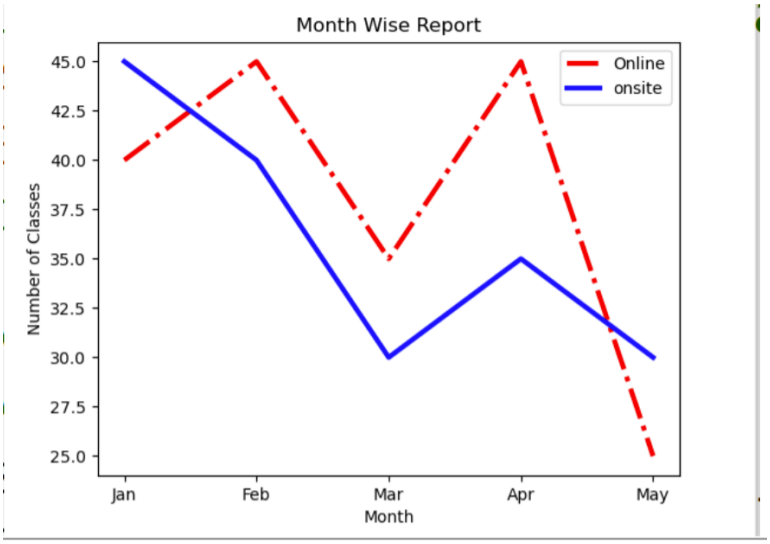
a) print(DF.Age==20]
b) print(DF[DF.Age==20])
c) print(DF[DF[Age]==20])
d) print(DF[DF['Age']=20]

26. Consider a given Series , M1:

	Marks
Term1	45
Term2	65
Term3	24
Term4	89

Write a program in Python Pandas to create the series.

27.



Write the code to create above graph.

28.

```
import matplotlib.pyplot as pl
import numpy as np
Cities=['Kanpur','Lucknow','Prayagraj','Varanasi']
Temp=[42,39,48,46]
pl.barh(Cities,Temp)
pl.xlabel('Temperature')
pl.ylabel('Cities')
pl.title('City wise temperature record')
pl.show()
```

Give the output of the above code.

29. Sutapa received an email from her bank stating that there is a problem with her account. The email provides instructions and a link, by clicking on which she can logon to her account and fix the problem. Help Sutapa by telling her the precautions she should take when she receives these type of emails.

30. Differentiate between Bus and Star topology. Draw the diagram of both.

31. What is a digital footprint. Explain two types of digital footprints.

Section C (3 marks each)

32. Write a script to draw a bar chart by importing appropriate package:

1. The title of the bar chart is ' ODI Scores'
2. teams=['MUMBAI', 'DELHI', 'RAJASTAN', 'KOLKATA', 'GOA'] X-axis
3. runs=[88, 78, 102, 43, 85] as the values for y-axis
4. Label x-axis as 'Teams'
5. Label y-axis as 'Runs'
6. Plot the bar chart
7. Display the bar chart on the screen

33. Write the purpose of the following devices :

1. Network Interface Card
2. Repeater
3. Modem

34. A new student is coding a program to work with the given dataframe.

```
Ser1 = pd.Series({"Chess": 'Shiela', "Tennis":'Derek',"Cricket":'Rodrek'})
Ser2 = pd.Series({"Tennis":225,"Chess":330,"Football":350, "Cricket":200})
DF = pd.DataFrame({"Coach":Ser1,"Fee":Ser2})
```

Based on the above commands, answer the questions that follow:

1.To add a new game 'VolleyBall' with coach 'Tulla' and Fee as 220, the command is
   a) DF['VolleyBall']=["Tulla",220]
   b) DF['VolleyBall']=("Tulla",220)
   c) DF.loc['VolleyBall']=("Tulla",220)
   d) DF.iloc['BaseBall']=("Ana",320)
2. To add a new column Discount with values as 10% of the Fee, the command is
   a) DF.Discount=DF.Fee*.10
   b) DF['Discount']=DF.Fee*.10
   c) DF['Discount']=DF.'Fee'*.10
   d) DF['Discount']=DF[Fee]*.10
3. To rename the column Fee as Amount, the command given is
   a) DF.rename(columns={'Fee':'Amount'})
   b) DF.rename('Fee':"Amount")
   c) DF.columns=['Amount']
   d) DF.columns.['Fee']=['Amount']

Section D (5 marks each)

35. Consider the following datafroame. Find out the following

```
d={"Name":['Abbas','Jithin','Rahul','Pranav'], "Marks":[100,72,14,16]}
df3=pd.DataFrame(d,index=['R1','R2','R3','R4'])
```

i) print(df3.loc['R3'])

ii) print(df3.iloc[2])

iii) print(df3[df3['Marks']==100])

iv) print(df3.max())

v) print(df3.count(axis=1))

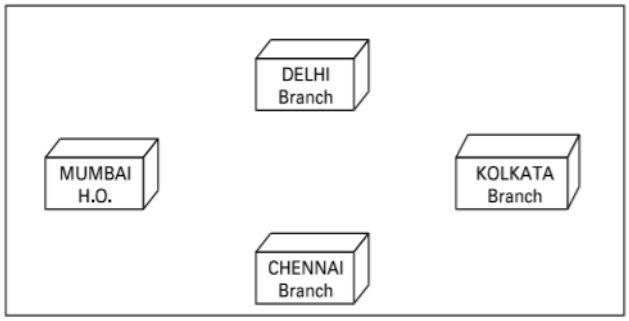
36. Helping Hands is an NGO with its head office at Mumbai and branches located at Delhi, Kolkata and Chennai. Their Head Office located at Delhi needs a communication network to be established between the head office and all the branch offices. The NGO has received a grant from the national government for setting up the network. The physical distances between the branch offices and the head office and the number of computers to be installed in each of these branch offices and the head office are given below. You, as a network expert, have to suggest the best possible solutions for the queries as raised by the NGO, as given in (i) to (v)

Distances between various locations in Kilometres :

Mumbai H.O. to Delhi	1420
Mumbai H.O. to Kolkata	1640
Mumbai H.O. to Chennai	2710
Delhi to Kolkata	1430
Delhi to Chennai	1870
Chennai to Kolkata	1750

Number of computers installed at various locations are as follows :

Mumbai H.O.	2500
Delhi branch	1200
Kolkata branch	1300
Chennai branch	1100



i) Suggest a suitable Topology for Networking the computer of all wings

ii) Name the wing where the server is to be installed. Justify your answer.

iii) Suggest the placement of Hub/Switch in the network.

iv) Which of the following will you suggest to establish the online face to face communication between the people in the Chennai Branch and Delhi Branch?

a) Cable TV b) Email c) Video Conferencing d) Text Chat

v) Write the name of the type of network out of the following, which will be formed by connecting all the computer systems across the network :

(A) WAN

(B) MAN

(C) LAN

(D) PAN

37. Consider the following DataFrame df and answer all questions from (i)-(v)

	City	Temperature	Humidity
1	Delhi	36	67
2	Mumbai	32	76
3	Banglore	28	56
4	Kolkatta	34	78

1. Write down the command that will give the following output.

City Kolkata
Temprature 34
Humidity 78

a) a.print(df.max)
b) b.print(df.max())
c) c.print(df.max(axis=1))
d) d.print(df.max, axis=1)

2. To display the city and temperature
   a) print(df[['City','Temperature']])
   b) print(df['City','Temperature'])
   c) print(df(city,temperature))
   d) print(df.(city,temperature))

3. Which of the following statement/s will give the exact number of values in each column of the dataframe?
   a) print(df.count())
   b) print(df.count(0))
   c) print(df.count)
   d) print(df.count(axis='index'))

4.Which of the following command will display the column labels of the DataFrame?
   a) a.print(df.columns())
   b) b.print(df.column())
   c) c.print(df.column)
   d) print(df.columns)

5.Ms. Sharma, wants to add a new column, Precipitation with the values,10,0,12,13 to the DataFrame. Help her choose the command to do so:
   a) df.column=[10,0,12,13]
   b) b.df ['Precipitation']=[10,0,12,13]
   c) C.df.loc['Precipitation']= [10,0,12,13]
   d) Both (b) and (c) are correct

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