

PERIODIC TEST- I(2024-2025)
CLASS :XII
INFORMATICS PRACTICES

12517

MM: 40

1. Define cookies. (1)
2. What is the primary function of a gateway in a computer network? Explain briefly. (2)
3. (a) Expand URL. Identify the protocol and domain in the following URL: (2)
`https://collegedekho.nic.in/topics.php?len=en`
 (b) Write any one advantage and one disadvantage of Star topology.
4. Write the code in python to create an empty Series. (2)
5. What will be the output of the following code: (2)

```
import pandas as pd
rollno=[1,2,3,4,5,6]
marks=[23,86,74,11,98,75]
s=pd.Series(marks, index =rollno)
print(s[s>75])
```

6. Find the output of the following python code: (2)

```
import pandas as pd
com=pd.Series([45,12,15,200],index=['mouse', 'printer',
'webcam', 'keyboard'])
print(com[1:3])
```

7. Consider the following python code: (2)

```
import pandas as pd
S1=pd.Series(['Rubina', 'Jaya', 'Vaibhav'], index=[10,16,19])
S2=pd.Series(['HP, HSE, IP'], index=[10,16,18])
S3=pd.Series([56,67,86], index=[10,16,18])
xii={'Name': S1, 'Subject': S2, 'Marks': S3}
df=pd.DataFrame(xii)
print(df)
```

Complete the above python code to display the following output:

	Name	Subject	Marks
10	Rubina	IP	56
16	Jaya	HSc	67
18	Vaibhav	IP	86

8. Given the following two series S1 and S2. Give the output of the following command. (3)

S1	
A	10
B	20
C	30
D	40
E	50

S2	
C	5
D	2
E	2
F	3
G	4

i) `print(S1+S2)`

ii) `print(S1*5)`

iii) `print(S2.hasnans)`

NaN

False

9. Given the following series S1.

(3)

1	23
2	86
3	74
4	11
5	98
6	75
7	88

Write the output of the following commands.

- i) `print(S1 < 80)`
- ii) `print(S1[4:6])`
- iii) `print(S1[[2,4,5]])`

10. Write a Python code to create a DataFrame with appropriate column headings from the list given below:

(3)

```
[['Nidhi', 'Business Studies', 95], ['Gurjeet', 'Informatics Practices', 97],
['Pahul', 'Accountancy', 88], ['Divya', 'English', 72]]
```

11. Anirudh, a data analyst, has stored the voter's name and age in a dictionary. Now, Kabir wants to create a list of dictionaries to store data of multiple voters. He also wants to create a DataFrame from the same list of dictionaries having appropriate row labels as shown below:

(3)

	Voter_Name	Voter_Age
Ar1001	Arjun	35
Ba3002	Bala	23
Go4002	Govind	25
Dh4007	Dhruv	19
Na6005	Navya	18

12. Consider the given DataFrame shop

(3)

	APPLIANCE_NAME	DISCOUNT	PRICE
0	REFRIGERATOR	15	19800
1	SMART PHONE	20	22300
2	TELEVISION	22	12900
3	AIR CONDITIONER	15	23500
4	WASHING MACHINE	18	18900
5	WASHING MACHINE	15	20110

Write the commands for the following:

- i. Add a column called Special_Quantity with the following data: [62,26,12,32,48,52,35].
- ii. Add a new Electronics item named 'TELEVISION', 12 having price 35600.
- iii. Remove the column Special_Quantity.

13. Ms. Radhika conducted an online assessment and stored the details in a DataFrame result as given below:

(3)

	Name	Score	Attempts	Qualify
a	Atulya	12.5	1	yes
b	Disha	9.0	3	no
c	Kavita	16.5	2	yes
d	John	15.0	1	no

Answer the following questions:

(i) Predict the output of the following Python statement:

```
print(result.loc[:, "Attempts"]>2)
```

(ii) Write the Python statement to display the last two records.

(iii) Write Python statement to display records of 'a' and 'd' row labels.

14. Mr. Som, a data analyst has designed the DataFrame df that contains data about Computer Olympiad with 'CO1', 'CO2', 'CO3', 'CO4', 'CO5' as indexes shown below. Answer the following questions:

(1+1+2)

	School	Tot_students	Topper	First_Runnerup
CO1	PPS	40	32	8
CO2	JPS	30	18	12
CO3	GPS	20	18	2
CO4	MPS	18	10	8
CO5	BPS	28	20	8

A. Predict the output of the following python statement:

i. df.shape

ii. df[2:4]

B. Write Python statement to display the data of Topper column of indexes CO2 to CO4.

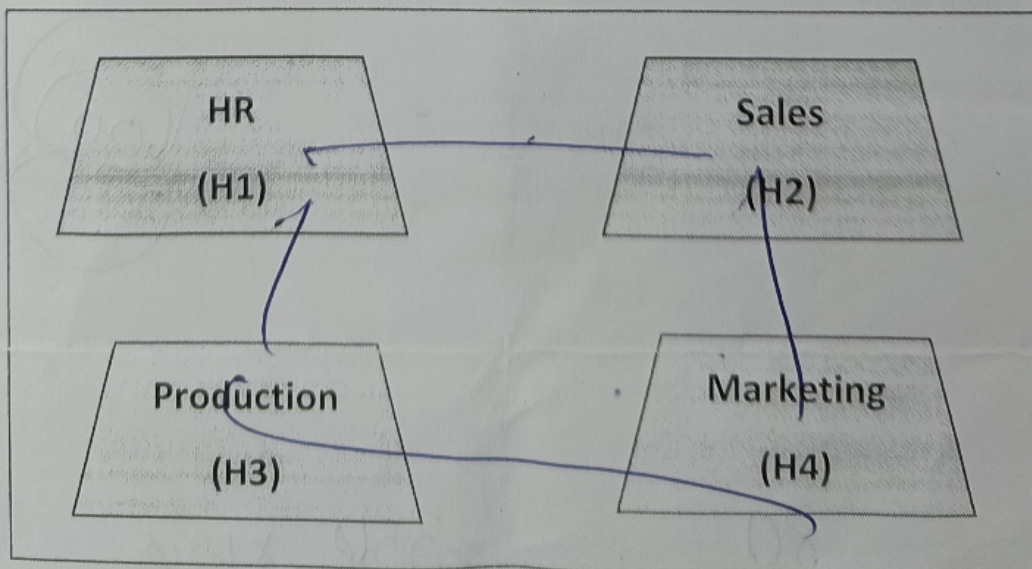
C. Write Python statement to compute and display the difference of data of Tot_students column and First_Runnerup column of the above given DataFrame.

15. ADDMAN Tech. Bengaluru is a company that deals with software development.

They have different divisions HR (H1), Sales (H2), Production (H3) and Marketing (H4).

The layout of the Bengaluru branch is:

(5)



The management wants to connect all the divisions as well as the computers of each division (H1, H2, H3 and H4).

Distance between the divisions as follows:

H1 to H2	76 m
H1 to H3	185 m
H1 to H4	88 m
H2 to H3	140 m
H2 to H4	125 m
H3 to H4	160 m

Number of computers in each of the division:

Division	Number of Computers
H1	140
H2	340
H3	180
H4	260

Based on the above specifications, answer the following questions:

- (i) Suggest the topology and draw the most efficient cable layout for connecting all the divisions of Bengaluru branch.
- (ii) ADDMAN Tech is expanding its reach and therefore it establishes a new office in Delhi. Out of LAN, MAN and WAN what kind of network will be created to connect Bengaluru office with Delhi office? *MAN*
- (iii) Suggest the division for the placement of server in Bengaluru branch. Explain the reason for your selection.
- (iv) Suggest the placement of the following devices in Bengaluru branch:
 - (a) Repeater
 - (b) Switch/Hub
- (v) The company's manager Ms Paridhi is worried as to how she can extend and modify the functionality of the web browser. Help her by giving names of any two tools.

