CBSE 2025

SECTION – B

22. (a) Mention any two main points of difference between Series and DataFrame of Python Pandas. 2

OR

(b) Explain how we can access elements of a series using slicing. Give an example to support your answer.

23. (a) Rohit is trying to create a Pandas Series from scalar values. His code has some mistakes. Rewrite the correct code and underline the corrections made. 2

```
import pandas
data = [50, 15, 40]
series = pd.series(data, Index=['x', 'y', 'z'])
Print(series)
```

OR

(b) Complete the given Python code to generate the following output :

```
   COLOUR   NAME   QTY
0   Red     Apple   10
1   Blue    Berry   15
2   Green   Guava   20
import _________ as pd
data=[{'COLOUR':'Red','NAME':'Apple', 'QTY':10},
{'COLOUR':'Blue','NAME':'Berry', 'QTY':15},
{_________,'NAME' :'Guava','QTY':20}]
df=pd.DataFrame(_________)
print(_________)
```

30. (a) Write a Python program to create the following DataFrame using a Dictionary of Series : 3

	City	State
0	Mumbai	Maharashtra
1	Dehradun	Uttarakhand
2	Bengaluru	Karnataka
3	Hyderabad	Telangana

OR

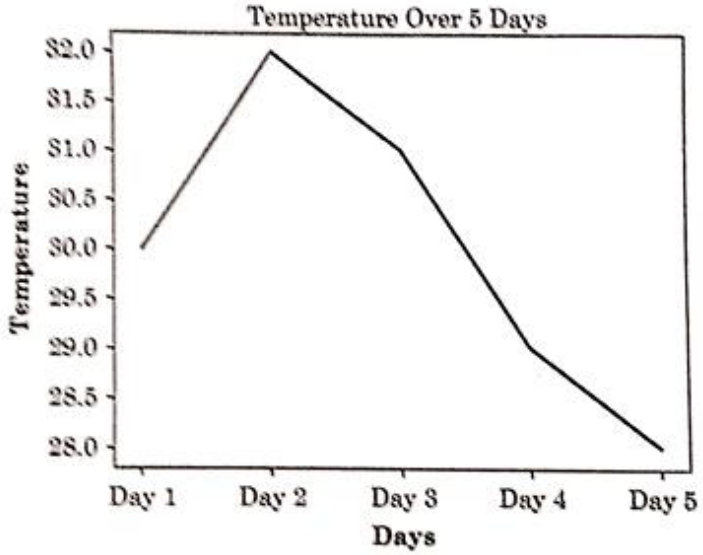
(b) Write a Python program to create a Pandas Series as shown below from an ndarray containing the numbers `10, 20, 30, 40, 50` with corresponding indices `'A', 'B', 'C', 'D', 'E'`.

A	10
B	20
C	30
D	40
E	50

SECTION – D

33. Gurkirat has to fill in the blanks in the given Python program that generates a line plot as shown below. The given line plot represents the temperature (in degree Celcius) over five days as given in the table : 4

Days	Temperature
Day 1	30
Day 2	32
Day 3	31
Day 4	29
Day 5	28




```
import ______ as plt # Statement-1
days = ['Day 1', 'Day 2', 'Day 3', 'Day 4', 'Day 5']
temp = [30, 32, 31, 29, 28]
plt.__(days, temp) # Statement-2
plt.xlabel('______') # Statement-3
plt.ylabel('Temperature')
plt.title('_____') # Statement-4
plt.show()
```

Write the missing statements according to the given specifications :

(i) Write the suitable code to import the required module in the blank space in the line marked as Statement-1.

(ii) Fill in the blank in Statement-2 with a suitable Python function name to create a line plot.

(iii) Refer to the graph shown and fill in the blank in Statement-3 to display the appropriate label for x-axis.

(iv) Refer to the graph shown and fill in the blank in Statement-4 to display the suitable chart title.

36. Consider the DataFrame `Doctor` shown below : 5

	DID	Name	Department	Fee
0	101	Dr. Joe	ENT	1500
1	102	Dr. Salma	UROLOGY	1600
2	103	Dr. Jeet	ORTHO	1550
3	104	Dr. Neha	ENT	1200
4	105	Dr. Vikram	ORTHO	1700

Write suitable Python statements for the following :

(i) To print the last three rows of the DataFrame `Doctor`.

(ii) To display the names of all doctors.

(iii) To add a new column `'Discount'` with value of 200 for all doctors.

(iv) To display rows with index 2 and 3.

(v) To delete the column `'Department'`.

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20. The Python code written below has syntactical errors. Rewrite the correct code and underline the correction(s) made. **2**

```
import Pandas as pd
stud=['Name':'Ramya','Class':11,'House':'Red']
s=p.Series(s)
print(s)
```

22. 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])
```

24. Consider the following Python code : **2**

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

27. Kabir, 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

Help Kabir in writing a Python program to complete the task.

30. Consider the given DataFrame **'password'** : **3**

	CodeName	Category	Frequency
0	aaaaaa	alpha	6.91
1	dragon	animal	18.52
2	baseball	sport	1.29
3	football	sport	11.11
4	monkey	animal	3.72
5	qwerty	alpha	1.85
6	abcde	alpha	3.19

Write suitable Python statements for the following :

(i) To add a new row with following values :

CodeName – 'abc123'

Category – alphanumeric

Frequency – 12.8

(ii) To delete the row with the row label 2.

(iii) To delete the column having column label as Frequency.

32. Ms. Ritika conducted an online assessment and stored the details in a DataFrame **result** as given below : 4

	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'] > 1)
```

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

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

OR

(Option for Part (iii) only)

(iii) Write suitable Python statement to retrieve the data stored in the file, **'registration.csv'** into a DataFrame, **'regis'**.

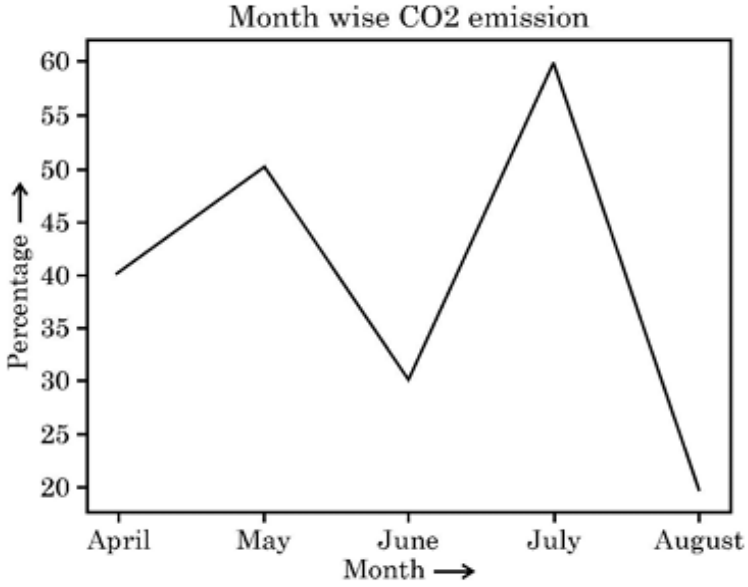
35. (a) The inventory management software of a grocery shop stores the price of all fruits as follows : 5

```
Fruits=['Apple','Guava','Papaya','Grapes','Mango']
Price=[150,70,50,30,120]
```

Write suitable Python code to generate a Bar Chart on the given data. Also add the chart title and label for X and Y axis. Also add suitable statement to save this chart with the name **fruits.png**.

OR

(b) Write suitable Python code to draw the following line chart "CO2 Emission" having title and label for X and Y axis as shown below.



Also give suitable Python statement to save this chart with the name, **emission.png**.

CBSE 2023

22. Write a Python program to create a series object, **country** using a list that stores the capital of each country.
Note : Assume four countries to be used as index of the series object are India, UK, Denmark, and Thailand having their capitals as New Delhi, London, Copenhagen, and Bangkok respectively. **2**

24. What will be the output of the following code : **2**

```
import pandas as pd
s1=pd.Series(data=2*(3,10))
print(s1)
```

25. Carefully observe the following code : **2**

```
import pandas as pd
dic={'pid':[101, 102, 103, 104, 105],
'pname':['Shyam','Roushan','Archit','Medha','Lalit'],
'sports':['Cricket','Tennis','Football','Cricket','Cricket'],
'points':[45000,20000,15000,53000,60000]}
player=pd.DataFrame(dic)
print(player)
```

Write Python statements for the following :

(i) In the dataframe player created above, set the row labels as 'Player1', 'Player2', 'Player3', 'Player4', 'Player5'.

(ii) Rename the column 'points' to 'netpoint' in the DataFrame player.

27. Kavyanjali, a chemical analyst, needs to arrange data of few elements in the form of two series containing symbols and their atomic numbers respectively. Thereafter, the data of these two series has to be arranged and displayed in the form of Data Frame as shown below :

	Symbol	Atomic Number
Hydrogen	H	1
Helium	He	2
Lithium	Li	3
Beryllium	Be	4

Help her in writing suitable Python code to complete the task. **3**

28. Consider the given DataFrame 'health'. **3**

	Diseasename	Agent
0	Common cold	Virus
1	Chickenpox	Virus
2	Cholera	Bacteria
3	Tuberculosis	Bacteria

Write suitable Python statements for the following :

(i) Remove the row containing details of disease named Tuberculosis.

(ii) Add a new disease named 'Malaria' caused by 'Protozoa'.

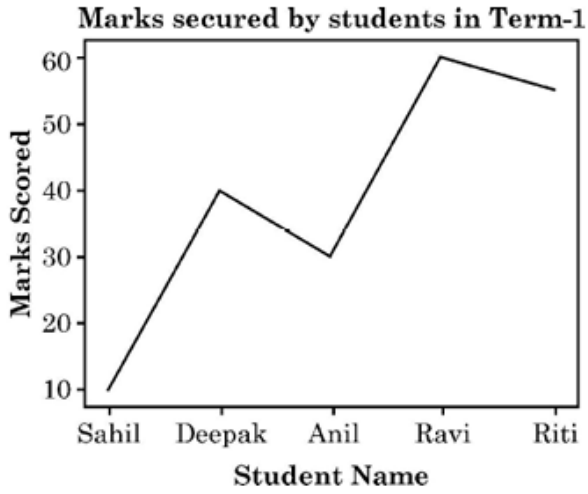
(iii) Display the last 2 rows.

33. Consider the following graph. Write the Python code to plot it. Also add the Title, label for X and Y axis. **5**

Use the following data for plotting the graph

smarks=[10,40,30,60,55]

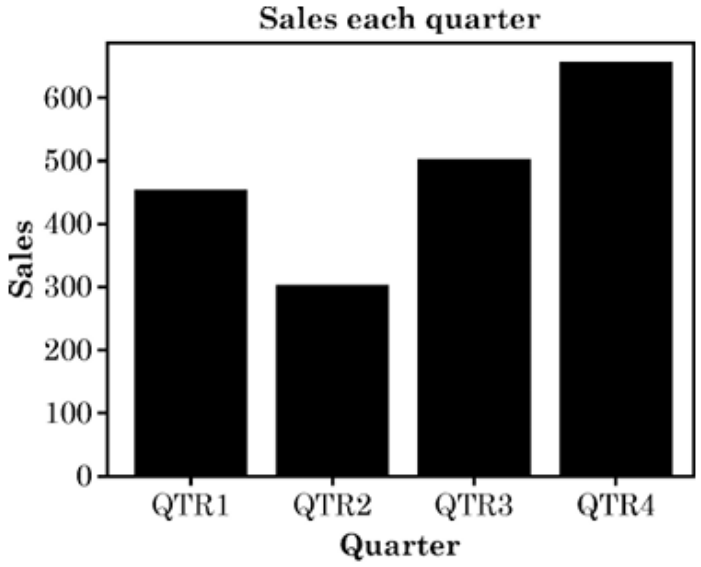
sname=["Sahil", "Deepak", "Anil", "Ravi","Riti"]



OR

Write Python code to draw the following bar graph representing the total sales in each quarter. Add the Title, Label for X-axis and Y-axis.
Use the following data for plotting the graph : **5**

sales=[450,300,500,650]
qtr=["QTR1", "QTR2", "QTR3", "QTR4"]



35. Consider the following DataFrame 'mdf'. **1 + 1 + 2**

	Rollno	Name	English	Hindi	Maths
0	1	Aditya	23	20	28
1	2	Balwant	18	1	25
2	3	Chirag	27	23	30
3	4	Deepak	11	3	7
4	5	Eva	17	21	24

(A) Write Python statements for the DataFrame 'mdf' :

(i) To display the records of the students having roll numbers 2 and 3.

(ii) To increase the marks of subject Math by 4, for all students.

(B) Write Python statement to display the Rollno and Name of all students who secured less than 10 marks in Maths.

OR

(Option for Part B only)

Write Python statement to display the total marks i.e., sum of marks secured in English, Hindi and Maths for all students. **2**