

XII – IP – PT 6 (QP) (35 MARKS)

General instructions:

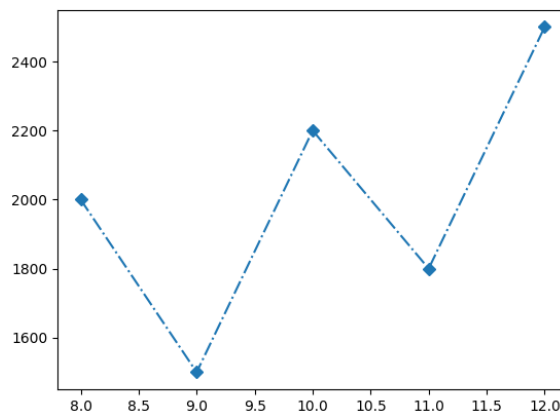
The question paper is divided into 5 sections – A, B, C, D and E

- Section A, consists of 9 questions (1-9). Each question carries 1 mark.
- Section B, consists of 4 questions (10-13). Each question carries 2 marks.
- Section C, consists of 3 questions (14-16). Each question carries 3 marks.
- Section D, consists of 1 question (17). It carries 4 marks.
- Section E, consists of 1 question (18). It carries 5 marks.
- Internal choices have been given for question numbers – 11,15 and 17

SECTION – A

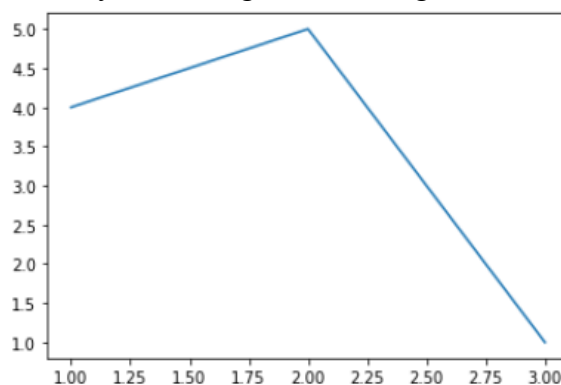
Each question carries 1 mark

- Which of the following is correct statement to import pyplot module?
 - import matplotlib.pyplot
 - import MatPlotLib.PyPlot
 - import matplotlib.plot as plt
 - import pyplot.plot
- To change the width of bars in bar chart, which of the following argument with a float value is used?
 - thick
 - thickness
 - width
 - barwidth
- The command used to give a heading to a graph is _____
 - plt.show()
 - plt.plot()
 - plt.xlabel()
 - plt.title()
- Identify the line style in the below picture



- a) dashed b) solid c) dash dot d) dotted

5. Observe the following figure. Identify the coding for obtaining this as output.



- ```
a. import matplotlib.pyplot as plt
plt.plot([1,2],[4,5])
plt.show()
```

- b. `import matplotlib.pyplot as plt`  
`plt.plot([1,2,3],[4,5,1])`  
`plt.show()`
- c. `import matplotlib.pyplot as plt`  
`plt.plot([2,3],[5,1])`  
`plt.show()`
- d. `import matplotlib.pyplot as plt`  
`plt.plot([1,3],[4,1])`  
`plt.show()`

6. What is plt in the given statement?

`import matplotlib.pyplot as plt`

- a) an alias
- b) an alternative name for matplotlib.pyplot
- c) argument of import statement
- d) Both (a) and (b)

7. There are 7 rows in a dataframe “DF”. How many rows will be displayed by the following statement?

`DF.head(10)`

- a) 10 rows
- b) 7 rows
- c) Error message will be displayed
- d) No output will be displayed

8. When we try to add a row with lesser values than the number of columns in the DataFrame, it results in a \_\_\_\_\_ error

- a) value
- b) key
- c) index
- d) No error

**Q9** is **ASSERTION** and **REASONING** based question. Mark the correct choice as

- i. Both A and R are true and R is the correct explanation for A
- ii. Both A and R are true and R is not the correct explanation for A
- iii. A is True but R is False
- iv. A is false but R is True

**9. Assertion (A) :** Histogram is used to summarize discrete or continuous data that are measured on an interval scale

**Reason (R):** We can use `plt.print( )` function to display Histogram

## SECTION – B

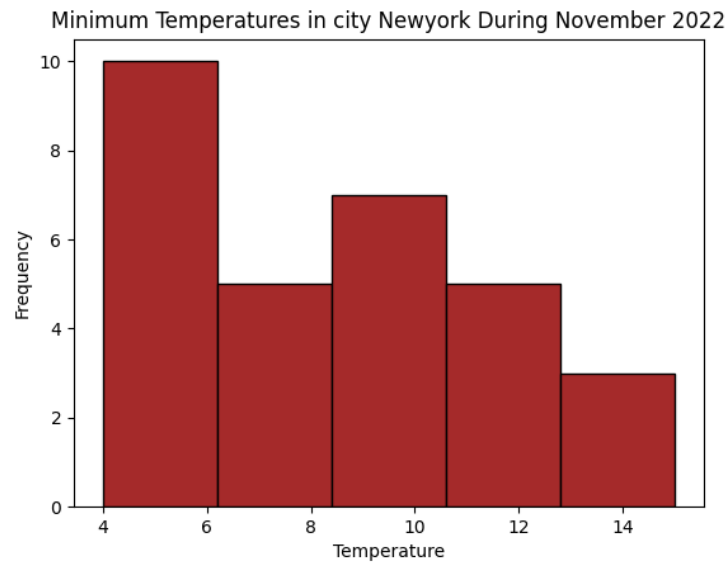
**Each question carries 2 marks**

10. Write a program to Create a Dataframe “Emp” as per the following and store the data frame as “Novsalary.csv” file in E Drive, SDetails folder.

|            | ENo | Name      | Salary  |
|------------|-----|-----------|---------|
| Employee 1 | 1   | Karun     | 25000.0 |
| Employee 2 | 2   | Nagur     | NaN     |
| Employee 3 | 3   | Sulochana | 37000.0 |
| Employee 4 | 4   | NaN       | 41000.0 |

11. Write a program to import first 3 records of above CSV file (from the above said file location) into the Dataframe “MyDF”.

12. Write a program to display following Histogram based on the Minimum Temperatures in the city “Newyork” during November 2022.



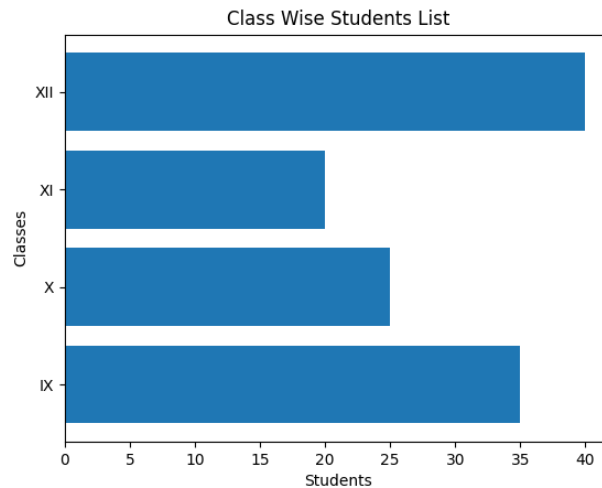
Minimum\_Temperatures =[6,5,6,5,5,5,4,9,11,12,14,15,12,13,11,11,8,7,10,10,9,9,7,8,9,5,6,6,7,10]

Give titles for x-axis, y-axis and whole chart as shown in the above picture.

(Or)

Write a program to display the following chart.

Give titles for x-axis, y-axis and whole chart as shown in the below picture.



13. (a) Write the output of the following code:

```
import numpy as np
import pandas as pd
A=np.array([35,40,71])
B=np.array([27,34,np.NaN])
C=[11,22,33]
DF=pd.DataFrame([A,B,C])
print(DF)
```

(b) Fill in the blank to produce the following output.

```

 0 1 2
One Sunil Anand Naresh
Two 95 78 99
```

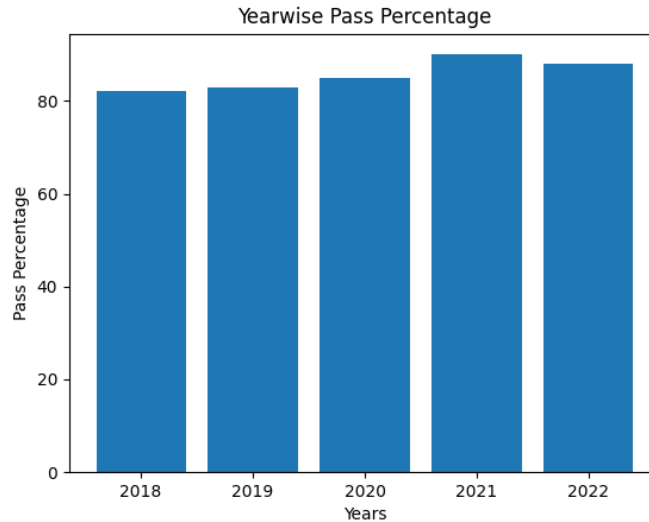
```
import pandas as pd
L1=["Sunil","Anand","Naresh"]
L2=[95,78,99]
DF=pd.DataFrame([L1,L2],_____)
```

print(Df)

## SECTION – C

Each question carries 3 marks

14. Write a code to plot a bar chart to depict the pass percentage of students in “ABC University” exams for the years 2018 to 2022 as shown below:



Give titles for x-axis, y-axis and whole chart as shown in the above picture.

15. Create the following DataFrame “Trains” which contains the following train details.

|           | TrainNo | From         | To          |
|-----------|---------|--------------|-------------|
| HydExp    | 17255   | Narsapur     | Lingampalli |
| NspExp    | 17256   | Lingampalli  | Narsapur    |
| Pass      | 77233   | Bhimavaram   | Narsapur    |
| Falaknuma | 12704   | Secunderabad | Howrah      |

Write a program to do the following operations:

- (a) Create the dataframe      (b) Display the row labels      (c) Display the column labels

(Or)

Create the following DataFrame “Trains” which contains the following train details.

|           | TrainNo | From         | To          |
|-----------|---------|--------------|-------------|
| HydExp    | 17255   | Narsapur     | Lingampalli |
| NspExp    | 17256   | Lingampalli  | Narsapur    |
| Pass      | 77233   | Bhimavaram   | Narsapur    |
| Falaknuma | 12704   | Secunderabad | Howrah      |

Write a program to do the following operations:

- (a) Create the dataframe  
(b) Display the data types of each column  
(c) Display the no.of dimensions, its shape and its size

16. Write a program to perform the following operations on the DataFrame Object DF.

**Given Data:**

| Name    | Age | Class |
|---------|-----|-------|
| Pavan   | 15  | X     |
| Kumar   | 16  | XI    |
| Santosh | 16  | XII   |

- (i) Create the above DataFrame DF with index as ‘Stu1’, ‘Stu2’, ‘Stu3’.  
(ii) Modify the Kumar age as 15  
(iii) Rename index “Stu3” to “Student3”  
(iv) Add the row Nani-17-XII

(v) Delete the details regarding Pavan.

(vi) Write a statement to print DataFrame. Also write the final DataFrame output.

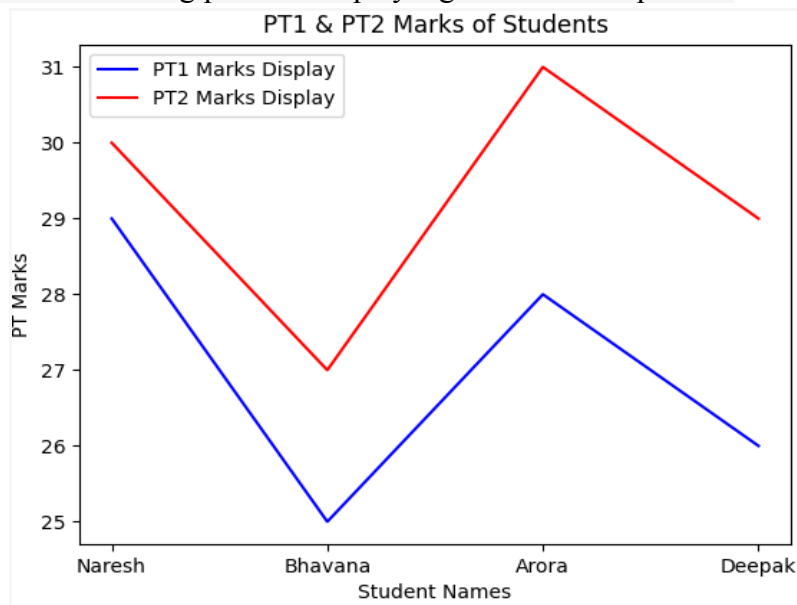
### SECTION – D

**It carries 4 marks**

17. Plot the following data on line chart:

| Name/Marks | CT1 | CT2 |
|------------|-----|-----|
| Naresh     | 29  | 30  |
| Bhavana    | 25  | 27  |
| Arora      | 28  | 31  |
| Deepak     | 26  | 29  |

Plot one line chart in Blue colour and another in Red colour. Give appropriate titles for x-axis, y-axis and whole chart as shown in the following picture. Display legends as in the picture.



**(Or)**

Plot the following data on bar chart:

| Name/Marks | CT1 | CT2 |
|------------|-----|-----|
| Naresh     | 29  | 30  |
| Bhavana    | 25  | 27  |
| Arora      | 28  | 31  |
| Deepak     | 26  | 29  |

Plot one bar chart in Blue colour and another in Red colour. Give appropriate titles for x-axis, y-axis and whole chart as shown in the following picture. Display legends as in the picture. Take width of each bar as 0.2 or 0.3.



plt. \_\_\_\_\_

#Statement 5

plt. \_\_\_\_\_ #Statement 6

plt. \_\_\_\_\_ #Statement 7

- i)** Write the appropriate statement for #statement 1 to import the module.
- ii)** Write the function name and label name as displayed in the output for #statement 2 and #statement 3 respectively.
- iii)** Which word should be used for #statement 4 to display on x-axis “Applications”, #statement 5 to display on y-axis “Usage in Millions”?
- iv)** Write appropriate method names for #Statement 6 to display legends and #Statement 7 to display the figure.
- v)** Mr. Mohan wants to change the chart type to horizontal bar chart. Which statement should be updated and which method or function is used?