ASSIGNMENT NO. 2

SUBJECT: INFORMATICS PRACTICES   CLASS-XII   MAY,2025

CH 3 : PLOTTING WITH PYPLOT

1. What is the purpose of the `pyplot` module in Python? Name any two functions commonly used from this module.
2. Differentiate between a line chart and a bar chart. Mention one situation where a histogram is more appropriate than a bar chart.
3. What is the role of the following functions in a plot?
   (i) `xlabel()`
   (ii) `ylabel()`
   (iii) `title()`
4. Write a Python program using matplotlib to plot a line chart for the following data:
   ```
   Years = [2018, 2019, 2020, 2021]
   Sales = [250, 270, 300, 310]
   ```
5. Write a program to create a bar chart showing the number of students in different streams of Class XII:
   ```
   Streams = ['Science', 'Commerce', 'Humanities']
   Students = [70, 50, 40]
   ```
6. What is the difference between `plt.bar()` and `plt.hist()`? Give examples of use cases for each.
7. Write a Python program to plot a histogram for the following marks scored by students in a test:
   ```
   Marks = [45, 36, 75, 62, 50, 90, 82, 56, 70, 68, 55]
   ```
   Use appropriate bin ranges.
8. Using pandas and matplotlib, write a program to plot a line chart from the following DataFrame:
   ```
   import pandas as pd
   import matplotlib.pyplot as plt
   data = {'Month': ['Jan', 'Feb', 'Mar', 'Apr'], 'Profit': [2000, 2200, 2500, 2300]}
   df = pd.DataFrame(data)
   ```

9. Write a Python program to plot a bar chart from the following DataFrame:
   ```
   import pandas as pd
   data = {'Product': ['Pen', 'Notebook', 'Pencil'], 'Sales': [150, 120, 180]}
   df = pd.DataFrame(data)
   ```

10. What will the following code output as a plot? Explain briefly.

   ```
   import matplotlib.pyplot as plt
   x = [1, 2, 3, 4]
   y = [10, 20, 25, 30]
   plt.plot(x, y, marker='o', linestyle='--', color='g')
   plt.title('Demo Chart')
   plt.show()
   ```