SHRI RAMSWAROOP MEMORIAL UNIVERSITY

PROBLEM SET – III

Session	**: 2025-26(Odd Sem)**	**Semester**	**: III**
Course	**: B.tech**	**Subject Code**	**: UCS 3804**
Branch	**: DS + AI**	**Subject Name**	**: Data Analytics & reporting**
Group	**: ALL**	**Name of Faculty Member**	**: Mr. Sukhmander singh, Ms. Deepika**
Unit	**: III**	**Topics Covered**	**: All Topics**

1. **What is Matplotlib, and why is it widely used for data visualization in Python?**
2. **How do you create line graphs, bar charts, and scatter plots using Matplotlib? Provide basic code examples.**
3. **Explain how subplots are created in Matplotlib and how they are useful in presenting multiple visualizations in a single figure.**
4. **Describe how to add titles, labels, legends, and annotations in Matplotlib to enhance plot readability.**
5. **What are the basic Excel formulas used for data analysis? Explain with examples (e.g., SUM, AVERAGE, IF).**
6. **How can you apply sorting and filtering to Excel datasets for better data exploration?**
7. **Explain the use of conditional formatting in Excel. How does it help in data interpretation?**
8. **What are pivot tables in Excel, and how do they assist in summarizing large datasets?**
9. **Describe how to create basic charts in Excel (bar, line, pie) and when to use each type.**
10. **How can visualizations created in Python using Matplotlib be exported or embedded into Excel for reporting purposes?**

Supplementary Questions:

1. **Write a Python program that creates a bar chart using Matplotlib, saves it as an image, and inserts it into an Excel file using any suitable library.**
2. **Explain how integrating Python and Excel enhances data reporting workflows in real-world business scenarios. Give a practical example.**

TEXTBOOKS:

1. **Data Science and Analytics** by V.K. Jain
2. IBM Courseware

REFERENCE BOOKS:

1. Data Analytics Made Accessible by Anil Maheshwari

(Signature of the Faculty Member with date) **(Signature of the Dean with date)**