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# St. Claret College

Autonomous, Bengaluru

ROLL NO:

DATE:



PG END SEMESTER EXAMINATION- JANUARY/FEBRUARY 2026

M.Com: THIRD SEMESTER

MCODSF3525: DATA VISUALIZATION FOR FINANCE

TIME: 3 hours.

MAX. MARKS: 70

This paper contains THREE printed pages and FOUR parts

**Instructions:**

1. Verify and ensure that the question paper is completely printed.
2. Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.
3. Students must check the course title and course code before answering the questions.

**PART-A**

Answer EIGHT questions out of TEN. Each answer carries TWO marks. [8x2 = 16]

1. Define financial data visualization.
2. What is meant by quantitative financial data?
3. State any two benefits of using charts in financial analysis.
4. What is unstructured data? Give one financial example.
5. What is a time-series chart?
6. Define data storytelling in the context of finance.
7. What is meant by ethical data visualization?
8. Mention any two risks of misleading financial charts.
9. What is transparency in financial reporting?
10. Name any two software tools used for financial data visualization.

**PART-B**

Answer any FOUR questions out of SIX. Each answer carries FIVE marks. [4x5=20]

11. Explain the concept of data storytelling in finance and its importance.
12. The following are monthly returns of a stock:  
returns = [0.02, 0.01, 0.02, 0.03, 0.01]

Write Python code using the statistics module to calculate:

- a) Mean
- b) Median
- c) Mode
- d) Standard Deviation

13. Tuples, Dictionaries & Sets.

- a) Create a tuple of stock prices
- b) Create a dictionary with stock name and price
- c) Create a set of sector names
- d) Mention one use of dictionary in finance

14. Given prices:

[200, 250, 300, 350]

- a) Convert the list into a NumPy array
- b) Increase prices by 5% without using loop
- c) Display updated prices

15. An investment started on 01-01-2020 and ended on 01-01-2025.

- a) Write Python code to calculate total days
- b) Convert days into years
- c) State one financial use of datetime

16. Explain the factors to be considered while selecting appropriate visualization tools for financial reporting.

### PART-C

Answer any TWO questions out of THREE. Each answer carries TEN marks. [2X10=20]

17. The following are the daily closing prices of a stock.

prices = [150, 155, 152, 160, 158]

- a) Convert prices into NumPy array
- b) Calculate the daily returns of the stock
- c) Calculate the average return
- d) Calculate the volatility (standard deviation of returns)
- e) Print all the results clearly

18. Discuss the best practices to be followed while designing financial visualizations.

Explain how improper design can mislead users.

19. The following information relates to a company for the year 2024–25 (₹ in lakhs):

- Net Sales (Revenue) = 1,200
- Cost of Goods Sold (COGS) = 720
- Operating Expenses = 180
- Interest on Loan = 60
- Tax = 90

a) Calculate the following using Python:

- i. Gross Profit (GP)
  - ii. Operating Profit (OP)
  - iii. Net Profit (NP)
  - iv. Gross Profit Ratio
  - v. Operating Profit Ratio
  - vi. Net Profit Ratio
- b) Prepare a Profit & Loss Account in proper format using Python output.

**PART-D**

**Answer the following. (Compulsory Skill Based Question/ Case Study) [14X1=14]**

**20. The following data shows the market capitalization (₹ in crores) of selected sectors**

Sectors = ["IT", "Banking", "Pharma", "FMCG", "Energy"]  
Market cap = [450000, 620000, 210000, 380000, 500000].

**Questions-**

a) Write a Python program using matplotlib to plot a BAR CHART for the above data with the following specifications. (7 marks)

- Use a bar chart
- Set suitable bar color
- Set appropriate bar width
- Label X-axis as Sectors
- Label Y-axis as Market Capitalization (₹ Crores)
- Add a suitable title
- Enable grid lines on Y-axis

b) Draw the expected output bar chart neatly in the answer sheet with. (7 marks)

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