

Department of Commerce
Osmania University
Computer Lab – Practical Question Bank
B.Com (Business Analytics)
Semester VI

Business Applications for Emerging Technologies

Time: 60 Minutes

Record : 10
Skill Test : 15
Viva - : 10
Voce
Total : 35
Marks

Use Excel, Python, & C Language

Use Microsoft Excel to solve the following.

Download a company's (TATAMOTORS.NS) financial statements like P&L, Balance Sheet, Cash flow etc for the past 10 years to solve the following questions.

1. Download TATAMOTORS.NS financial statements calculate the year-on-year growth rate of revenue. Create a bar chart to visualize the growth. Forecast the revenue for next three years.
2. Analyse the trend of total expenses over the past ten years. Plot the line graph and identify any patterns or irregularities.
3. What is the composition of Cost Of Materials Consumed, Purchase Of Stock-In Trade, Operating and Direct Expenses, Changes in inventories of FG, WIP and Stock in Trade, Employee Benefit expenses, Finance costs, Depreciation and Amortization Expenses and other Expenses as a percentage of Total Expenses year wise for past ten years. Based on the analysis, provide inferences about the company's expense structure to cost management strategies and operational trends. How does this compare to industry standards if available.
4.
 - a. Calculate the Net Profit Margin of Tata motors for the last 10 years.
 - b. Visualize the trend of Net Profit Margin over the decade with an appropriate chart.
 - c. Compare the Net Profit Margin with key competitors in the industry to evaluate Tatomotors's relative performance.
 - d. Analyze the factors influencing the Net Profit Margin including
 - Revenue Growth or decline.
 - Changes in operating expenses.

- Variations in finance costs and tax rates.
5. Using Tata Motors' financials, evaluate how external disruptions (e.g., COVID-19) impacted revenue, profitability, and operational efficiency. Conduct a comparative analysis of the affected years versus unaffected years.
 6. Analyse the composition of Tata Motors' operating costs. Create a pie chart to illustrate the distribution of major expense categories over the years.
 7. Download the cash flow statement of Tata Motors. Analyse the trends in cash inflows and outflows over the last ten years and provide insights. Inset sparklines to understand the trend in inflows and outflows. Also forecast the inflows for next two years.
 8. Using Tata Motors' Financial statements (Profit and Loss Statement and Balance Sheet) for the past 10 years:
 - a. Perform a year-wise trend analysis of
 - Total Revenue and its growth rate
 - Segment-wise revenue(Eg. Passenger vehicles, commercial vehicles, electric vehicles)
 - Domestic Vs. International Revenue
 9. Evaluate Cost and profitability from
 - Cost of goods sold(COGS) and its impact on Gross Profit Margin
 - Operating costs and their impact on Operating Margin
 - Net profit and its correlation with revenue trends
 10. Examine supporting indicators from the balance Sheet by observing changes in
 - Inventories
 - Receivables
 - PayablesOver the past 10 years.
 11. Compare Tata Motors' revenue trends with Industry averages or key competitors like Mahindra& Mahindra, Maruti Suzuki etc.
 12. From the solutions of questions 8 to 11, create a dash board In excel to visualize them, and give your insights and recommendations.
 13. Create a what-if-analysis in Excel using Tata Motors' financials – Revenue and COGS as % of Revenue using tools like Data tables.
 14. Compare Scenarios with different combinations of Operating Expenses, Finance Costs and other expenses.

15. Determine the revenue needed to achieve a specific Net profit using Goal Seek.
16. Use Tableau to find the Financial performance KPIs for Tata Motors's.
 - Revenue Growth Rate
 - Net profit Margin
 - Operating Profit Margin
 - Earnings per share
 - Give your inferences.
17. Use Tableau to find Asset Utilization KPIs of Tata Motors'
 - ROA
 - Inventory Turnover Ratio
 - Fixed Asset Turnover Ratio
 - Give your insights and recommendations on the observations.
18. Using 10 year Tata Motors' financial data perform financial health check using key financial ratios.
 - Quick ratios
 - Liquidity ratios
 - Efficiency ratiosGive your insights.
19. Use Excel's Trend Line or Regression analysis tools to plot Revenue growth over the past 10 years.
Forecast the future revenue growth based on historical data using linear or exponential growth model.
20. Perform Break Even analysis to understand Tata Motors' cost structure.
21. Create a Python program to analyze a dataset (e.g., customer reviews) and demonstrate how AI can be used to extract insights. For example, use sentiment analysis to categorize reviews as positive, negative, or neutral.
22. Implement a simple chatbot using Python's NLTK library that can respond to basic user queries.
23. Write a Python program to analyse sentiment in each text using the TextBlob library.
24. Create a machine learning model in Python to classify spam emails using the Naive Bayes algorithm.
25. Write a Python program to predict house prices using linear regression.

26. Develop a Python program to clean and preprocess a given dataset for a machine learning model.
27. Write a Python script to perform exploratory data analysis (EDA) on a dataset of your choice.
28. Write a program to check the strength of the pass word.
29. From Yahoo Finance download a stock price in Python and find the Simple Moving Average and print the first 100 values and the related graph.
30. From Yahoo finance download a stock price in Python and draw the needed graphs to present the Open, Close, High, Low, Adj. Close, Volume of five year data.
31. Create a glossary of key cybersecurity terminology in Excel and explain each term briefly.
32. Write the steps to transfer files between Wireless communication using Blue Tooth and FTP
33. Write the steps to protect a document or a file.
34. Write the steps for disk partitioning and perform operations like formatting.
35. Write the steps for shrinking, extending and deleting after partitioning.
36. What are the features of Firewall? Write the steps in providing network security and to set Firewall security in windows.
37. Write a program to check the strength of the password.
38. Write a program to search the given pattern using optimized algorithm.
39. What is Malware? Write the steps to remove the malware from your PC.
40. Create a presentation on “Ethical Hacking” with minimum 10 slides.
41. Create a presentation on “Cyber Security” with atleast 10 slides.
42. Write the steps to read E-mail Headers and identify them as SPAM.
43. Write the steps to check the devices connected to your internet and about the data usage.
44. Prepare a presentation of 5 slides on “How Block Chain impact Capital

Markets”.

45. Prepare a presentation of 5 slides on “How Block Chain impact the global Payments and remittances”.
46. Prepare a presentation to explain “How Block Chain Impact Asset Management”.
47. Prepare a presentation to explain “How Block Chain impact banking and lending”.
48. Prepare a presentation to explain “How Block Chain impact trade and finance”.
49. Prepare a presentation to explain, “How Block Chain impact Insurance”.
50. Prepare a presentation to explain “Challenges in the Fintech Industry that Blockchain Addresses”.
51. Prepare a presentation on “Block Chain and its real life applications”.