

**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 - Voce : 10

Total Marks : 35

Excel, Tally, Python, C++

Excel Programs:

1. Prepare the financial modelling for the present values.
The future value of an investment in the US \$100 in 2026. The payment has been made yearly for three years. The interest rate is 10% p.a. What would be the PV as of now?
2. Prepare the NPV calculator in Excel.
Find the NPV of the project when cost of capital is 10%. Initial investment is Rs.12,00,000. The project has 6 years life. The cash flows are 4lakh, 5lakh, 3lakh, 2lakh, 3 lakh, 2 lakh.
3. Prepare the Internal Rate of Return calculator in Excel.
Find the IRR of the project when cost of capital is 10%. Initial investment is Rs.1,000. The project has 6 years life. The cash flows are 400, 500, 300, 200, 300, 200.
4. Prepare Loan EMI calculator.
Mr. X purchased a Car of Rs.15,00,000 taking a loan from bank with a down payment of Rs. 1,50,000 for 8 years @10%. Calculate the EMI.
5. Prepare the Future Value calculator on varied interest rates and maturity periods.
Find the future values of the monthly premium of Rs. 100 with interest rates 5%, 6%, 7%,10%,12% and for number of payments as 4months, 5months,6months etc.
(Two way calculator)
6. Prepare the Loan Amortisation Schedule in Excel.
XYZ Lts. Has borrowed an amount of Rs. 10,00,000 repayable in equated quarterly instalments over next 5 years together with interest at 15% per annum. Prepare the Loan Amortization Schedule.
7. Creating Ageing Analysis:
Create Aging analysis report for accounts receivable be generated in Tally Prime for all customers between April 1st, 2022 and July 31st, 2022, that shows the total outstanding due based on aging intervals of 0-30, 30-60, 60-90, 90-120, and over 120 days?

8. Use MS Word to Mail Merge “New Year Greetings” from a given excel sheet.
9. Prepare a Comparative Statement of Profit and Loss Model for the years 31st March 2022 and 2023 of any company from the Profit and Loss Account of any company.

Profit and Loss Account			
	Particulars	31/03/2023	31/03-2022
I	Revenue from Operations		
	Gross Sales	₹815,000.00	₹725,000.00
	Returns	₹15,000.00	₹25,000.00
II	Other Income	₹8,050.00	₹1,200.00
III	Expenses		
	Cost of Material Consumed	6,15,000	5,95,000
	Employee Benefits Expenses	₹12,500.00	₹12,700.00
	Depreciation and Amortisation E	₹1,940.00	₹1,750.00
	Other Expenses	₹24,000.00	₹23,000.00

Also give your inferences.

10. Prepare a Comparative Statement of Profit and Loss Model for the years 31st March 2022 and 2023 of any company from the Profit and Loss Account of any company with Corporate tax of 20%.

Profit and Loss Account			
	Particulars	31/03/2023	31/03-2022
I	Revenue from Operations		
	Gross Sales	2300000.00	₹2,000,000.00
	Returns	30000.00	₹25,000.00
II	Other Income	45050.00	₹45,000.00
III	Expenses		
	Purchase of stock in trade	1700000.00	₹1,600,000.00
	Change in inventories	80000.00	₹60,000.00
	Explooyees Benefit Expenses	70000.00	₹58,000.00
	Finance Cost	50000.00	₹55,000.00
	Depreciation	20000.00	₹15,450.00
	Other Expenses	50000.00	₹35,000.00
	Depreciation and Amortisation Expenses	1940.00	₹1,750.00
	Other Expenses	24000.00	₹23,000.00

Give your inferences.

11. Prepare a Comparative Statement of Balance Sheet Model of the companies X Ltd and Y Ltd as at 31st of March 2019.

	Particulars	X Ltd	Y Ltd
I	Equity and Liabilities		
	Shareholder's Funds:		
	Equity Share Capital	₹250,000.00	₹170,000.00
	Preference Share Capital	₹120,000.00	₹90,605.00
	Reserves and Surplus	₹50,000.00	₹76,000.00
II	Non Current Liabilities		
	Long Term Borrowings		
	Loans	₹350,000.00	₹279,000.00
III	Current Liabilities		
	Tradable payables		
	Bills Payable	₹25,000.00	₹14,000.00
	Sundry Creditors	₹18,000.00	₹8,000.00
	Outstanding Expenses (Other Current Lia	₹8,590.00	₹12,585.00
	Unpaid Dividend	₹2,500.00	₹7,500.00
IV	Assets		
	Non-Current Assets:		
	Tangible :		
	Land and Building	₹350,000.00	₹275,000.00
	Plant and Machinery	₹270,000.00	₹300,000.00
V	Current Assets:		
	Investments(Temporary)	₹72,500.00	₹35,840.00
	Book Debts(Trade Receivable)	₹47,500.00	₹25,850.00
	Prepaid Expenses (Others)	₹35,400.00	
	Cash and cash Equivalents	₹48,690.00	₹21,000.00

Present the data in such a way that proper analysis is possible.

12. Prepare a Common Size Statement of Balance Sheet Model of the companies X Ltd and Y Ltd as at 31st of March 2019 for the above data.
13. For the following data, use Goal seek to determine
 - (i) how many units has to be produced so that the net value is \$100000.
 - (ii) What should be the cost per unit if I the number of units produced is 25000 and the net value is \$100000.

Goal Seek		
Assumptions		Income Statement
Units sold	5,000	Revenue
Price per unit	5.00	COGS
Cost per unit	2.75	Gross Profit
SG&A	10,000	SG&A
Tax rate	21%	Earnings Before Tax
		Taxes
		Net Income (Loss)

14. Use scenario manager using the following data, by changing values of Food, clothes, and fuel.

Scenario Manager in Excel	
Particulars	Amount
Income from salary	50,000
Income from wife	35,000
income from other source	20,000
Total income	105,000
Expenses	Amount
Rent	18,000
Electricity bill	2,500
Mobile bill	1,250
Internet bill	1,500
water bill	1,200
Food	15,000
Clothes	7,000
Fuel	8,000
Personal loan	12,000
Education of children	20,000
Total Expenses	86,450
Balance	18,550

15. The monthly closing share price for 31 months for Nifty, Tata motors, TCS, and Hindustan Unilever Ltd are given below.

Year	Month	Tata Motors	TCS	Hindustan Unilever	Nifty	
2019	April	\$243.80	\$623.61	\$234.75	\$3,473.95	
	May	\$336.85	\$704.60	\$230.80	\$4,448.95	
	June	\$290.75	\$779.70	\$267.50	\$4,291.10	
	July	\$421.55	\$1,051.90	\$291.50	\$4,636.45	
	August	\$489.70	\$1,054.10	\$259.95	\$4,662.10	
	September	\$591.15	\$1,242.00	\$262.60	\$5,083.95	
	October	\$567.25	\$1,256.60	\$286.50	\$4,711.70	
	November	\$663.15	\$1,376.80	\$285.20	\$5,032.70	
	December	\$791.55	\$1,500.50	\$264.83	\$5,201.05	
	2020	January	\$694.35	\$1,472.40	\$242.30	\$4,888.20
		February	\$711.20	\$1,523.60	\$236.20	\$4,922.30
		March	\$757.70	\$1,561.30	\$239.55	\$5,249.10
April		\$872.60	\$1,530.80	\$239.80	\$5,278.00	
May		\$755.00	\$1,486.10	\$237.20	\$5,086.60	
June		\$778.50	\$1,502.00	\$267.55	\$5,312.50	
July		\$846.35	\$1,679.60	\$264.50	\$5,367.60	
August		\$1,010.35	\$1,687.50	\$309.05	\$5,402.40	
September		\$1,098.10	\$1,853.90	\$294.70	\$6,029.95	
October		\$1,159.00	\$2,105.80	\$298.25	\$6,017.70	
November		\$1,234.95	\$2,152.00	\$312.90	\$5,862.70	
December		\$1,308.35	\$2,331.30	\$271.15	\$6,134.50	
2021	January	\$1,147.05	\$2,319.00	\$286.15	\$5,505.90	
	February	\$1,082.75	\$2,220.50	\$287.10	\$5,333.25	
	March	\$1,248.35	\$2,367.80	\$285.20	\$5,833.75	
	April	\$1,236.85	\$2,331.30	\$304.65	\$5,749.50	
	May	\$1,095.30	\$2,314.30	\$343.65	\$5,560.75	
	June	\$994.20	\$2,368.40	\$324.00	\$5,647.40	
	July	\$948.10	\$2,274.00	\$320.40	\$5,482.00	
	August	\$742.30	\$2,084.80	\$340.60	\$4,943.25	
	September	\$780.25	\$2,074.60	\$375.80	\$5,362.60	
	October	\$992.25	\$2,237.60	\$3,382.95	\$5,626.25	

- a. What are the monthly returns on Nifty, Tata Motors, TCS and HUL. (Ignore the dividend yield)

- b. What are the average returns (Arithmetic and Geometric) on Nifty, Tata Motors, TCS, and HUL.
- c. What are the standard deviations on the returns on Nifty, Tata Motors, TCS and HUL.

16. Find the Cost of goods sold, Gross profit, Operating Expenses, Operating Income and net Income from the data given below.

Cummins Printing			
Income Statement for the Year end	12/31/2015	12/31/2016	12/31/2017
Sales	496541	367450	389864
Cost of Goods sold			
Inventory 1/1	116081	85919	112969
Purchases	115372	147970	187540
Inventory 12/31	85919	112969	129125
Expenses			
Advertising	6166	5915	6770
Office Lease	8750	9110	9544
Insurance	3906	3784	4010
Office Supplies	2110	2680	3862
Salaries	62378	72924	94347
Communications	3708	5507	7014
Travel	1070	6310	8733
Depreciation	4192	4192	4192
Taxes	25%		

Also project 2018 Sales.

17. The data given below is the pay slip generated for the employees of ABC Company.

ABC COMPANY PVT. LTD.												
EMP ID	EMP NA	DEPT	DESIG	DOJ	BASIC	DA	HRA	BONUS	PF	ESI	SALARY PAYA	PAYSLIP GENERATED
101	Ajay	Sales	Head	8/1/2012	₹ 45,000.00	₹ 9,000.00	₹ 6,480.00	₹ 900.00	0	0	₹ 61,380.00	YES
102	Umesh	Marketing	Manager	10/5/2012	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
103	Jay	Purchase	Ofc Asst	5/1/2013	₹ 25,000.00	₹ 5,000.00	₹ 3,600.00	₹ 500.00		0	₹ 34,100.00	YES
104	Vimal	Finance	Manager	2/12/2016	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
105	Prem	Sales	Executive	4/18/2012	₹ 20,000.00	₹ 4,000.00	₹ 2,880.00	₹ 400.00	0	0	₹ 27,280.00	YES
106	Karan	Admin	Clerk	8/1/2012	₹ 15,000.00	₹ 3,000.00	₹ 2,160.00	₹ 300.00	0	0	₹ 20,460.00	YES
107	Manish	Accounts	Head	8/26/2013	₹ 45,000.00	₹ 9,000.00	₹ 6,480.00	₹ 900.00	0	0	₹ 61,380.00	YES
108	Lata	Marketing	Manager	10/30/2015	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
109	Ritu	HR	CEO	1/3/2014	₹ 50,000.00	₹ 10,000.00	₹ 7,200.00	₹ 1,000.00	0	0	₹ 68,200.00	YES
110	Naresh	Purchase	Manager	3/9/2014	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
111	Amar	Accounts	CEO	5/13/2014	₹ 50,000.00	₹ 10,000.00	₹ 7,200.00	₹ 1,000.00	0	0	₹ 68,200.00	YES
112	Eshwar	Marketing	Ofc Asst	5/15/2020	₹ 25,000.00	₹ 5,000.00	₹ 3,600.00	₹ 500.00	0	0	₹ 34,100.00	YES
113	Tarun	Finance	Manager	5/7/2016	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
114	Ganesh	Marketing	CEO	11/24/2016	₹ 50,000.00	₹ 10,000.00	₹ 7,200.00	₹ 1,000.00	0	0	₹ 68,200.00	YES
115	Jay	HR	Manager	1/28/2016	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
116	Umesh	Admin	Ofc Asst	4/3/2017	₹ 25,000.00	₹ 5,000.00	₹ 3,600.00	₹ 500.00	0	0	₹ 34,100.00	YES
117	Ali	Sales	Clerk	6/7/2016	₹ 15,000.00	₹ 3,000.00	₹ 2,160.00	₹ 300.00	0	0	₹ 20,460.00	YES
118	Wilson	Marketing	Manager	8/11/2017	₹ 38,000.00	₹ 9,500.00	₹ 5,700.00	₹ 760.00	0	0	₹ 53,960.00	YES
119	Vikas	HR	Ofc Asst	7/4/2016	₹ 25,000.00	₹ 5,000.00	₹ 3,600.00	₹ 500.00	0	0	₹ 34,100.00	YES
120	Dinesh	Admin	Clerk	12/19/2016	₹ 15,000.00	₹ 3,000.00	₹ 2,160.00	₹ 300.00	0	0	₹ 20,460.00	YES

If the organization plans to give a fixed amount (Rs. 2000) as performance appraisal to all the employees, then create a scenario summary for the percentage change in the salaries of the employees. Which employees are satisfied by this decision.

18. Project A and Project B require an investment of Rs. 20,00,000 each, the life of both the projects is five years. The information about projected cash inflows and probabilities are given below:

Type	Project A	Probability	Project B	Probability
Optimistic	8,00,000	0.4	10,00,000	0.2
Moderate	7,00,000	0.2	9,00,000	0.1
Poor	6,00,000	0.3	7,00,000	0.4
Pessimistic	5,00,000	0.1	6,00,000	0.3
	1		1	

You are required to calculate NPV and rank the projects. The cost of capital of the company is 10% P.A.

19. Use Vlookup function and find the Profitability Ratios Growth Ratios, Activity Ratios, Liquidity Ratios and Solvency Ratios.

RATIO ANALYSIS			
Description	2016	2015	2014
	Amount	Amount	Amount
	in Crores	in Crores	in Crores
Income Statement	₹	₹	₹
Revenue	5,000	4,000	3,780
Cost of Goods Sold	2,670	2,130	1,890
Interest Expense	43	380	320
Tax Expense	25	200	150
Income from Cont Operations	2,330	1,870	1,890
Net Income	2,262	1,290	
Balance Sheet			
Cash	2,070	1,359	1,123
Short Term Investments	722	315	265
Accounts Receivable	2,340	2,134	1,679
Inventory	2,500	1,222	985
Current Assets	7,632	5,030	4,052
Long Term Investments	1,000	435	
Net Fixed Assets	8,632	5,465	
Other Assets	0	0	
Total Assets	8,632	5,465	4,300
Current Liabilities	2,221	1,543	1,367
Total Liabilities	2,411	2,285	1,863
Total Stockholders' Equity	4,000	3,500	1,070
Cash Flow			
Cash Flow from Operations	3,150	2,814	2,345
Dividends Paid	120	87	112
Interest Paid	43	31	44
Share Information			
Market Price at Year End	110.00	96.00	78.00
Earnings Per Share - Basic	3.50	3.50	2.15
Shares Outstanding	0	0	0

20. From Screener website, take any company's 2019 and 2020 balance sheet and prepare common size analysis. Compare and give your interpretations.
21. From Screener Website, Choose any company and describe the company's Essentials in brief and give your inferences.
22. From Ticker by Finology Website, choose any company and find Profitability ratios, Liquidity ratios, Activity Ratios, Growth Ratios and solvency ratios.
23. From Screener, choose any company and analyse the following from the data given there:
 - a. Profitability Analysis – Evaluate Earning Power
 - b. Efficiency Analysis – Measure Asset Utilization
 - c. Solvency Analysis – Assess Debt Management
 - d. Valuation Analysis – Estimate Intrinsic value
 - e. Growth Analysis – Track revenue and earnings growth
24. From Screener, choose any company and analyse the following from the data given there:
 - a. Compare the company's financial ratios with industry averages to understand its relative performance within the sector.
 - b. Analyse the company's ratios against its direct competitors to identify strengths and weaknesses.
25. Download car_sales.csv from Kaggle and perform analysis using pivot tables.

Python

26. Use car_sales.csv data in Python and draw the necessary graphs. Describe the data and do exploratory data analysis.
27. Write a program to check the strength of the pass word.
28. 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.
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 candle stick graph.

C++ Programs for Cyber Security

31. Write the steps to transfer files between Wireless communication using Blue Tooth and FTP
32. Write the steps to protect a document or a file.
33. Write the steps for disk partitioning and perform operations like formatting.
34. Write the steps for shrinking, extending and deleting after partitioning.

35. What are the features of Firewall? Write the steps in providing network security and to set Firewall security in windows.
36. Write a program to check the strength of the password.
37. Write a program to search the given pattern using optimized algorithm.
38. What is Malware? Write the steps to remove the malware from your PC.
39. Create a presentation on “Ethical Hacking” with minimum 10 slides.
40. Create a presentation on “Cyber Security” with atleast 10 slides.

Block Chain Technologies

41. Write the steps to read E-mail Headers and identify them as SPAM.
42. Write the steps to check the devices connected to your internet and about the data usage.
43. Prepare a presentation of 5 slides on “How Block Chain impact Capital Markets”.
44. Prepare a presentation of 5 slides on “How Block Chain impact the global Payments and remittances”.
45. Prepare a presentation to explain “How Block Chain Impact Asset Management”.
46. Prepare a presentation to explain “How Block Chain impact banking and lending”.
47. Prepare a presentation to explain “How Block Chain impact trade and finance”.
48. Prepare a presentation to explain, “How Block Chain impact Insurance”
49. Prepare a presentation to explain “Challenges in the Fintech Industry that Blockchain Addresses”.
50. Prepare a presentation on “Block Chain and its real life applications”.