

**Faculty of Management  
Osmania University  
Practical Question Bank  
BBA ( Business Analytics)  
Semester V w.e.f. 2021  
COURSE CODE: DSE - 503  
COURSE: (B) MARKETING ANALYTICS – I (M)**

**Total Marks : 35**

**Record : 10 Marks**

**Practicals : 20 Marks**

**Viva Voice: 5 Marks**

**Record Work:**

- 1. Input: Students must write the procedure/steps for the given question /problem.**
- 2. Process: Students must write Steps/ Navigations to execute**
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- 4. Use Excel**

**From the link given below, download the data set and answer the questions**

**Marketing Campaign Data Set – ([Link](#))**

1. (i) Name the companies and their count in the data. Show it with pivot table.  
(ii) What are the unique categories of Campaign. Give a count of them. Which channel is used the most.  
(iii) Give descriptives of Target Audience.
2. Prepare a Pivot table for target audience and customer segment and the total acquisition cost for each group.
3. What are the unique categories of Campaign, give a count of them.
4. Average acquisition cost per channel. Give descriptives.
5. Cost per acquisition by campaign type
6. Performance by Location and Language
7. Give an account of Campaign, Channel and acquisition cost. Which is most effective.
8. Which Company, for which Campaign and for which Channel is paying the highest acquisition cost.
9. Return on Investment by Each Location

10. Conversion Rate by Language. Which is the most effective.
11. What is the Customer Acquisition by Campaign and Time Frame.
12. List out the top 10 performing Campaigns. Give analysis of these Campaigns by analyzing target audience, channel, language and content type.
13. Give an analysis of Campaign performance by demographics
14. Apply Slice and Dice -
  - (i) Slice by Channel, Campaign type
  - (ii) Slice by Language and Location
15. Dice the data by different Metrics
  - (i) Clicks
  - (ii) Conversions
  - (iii) Cost per Acquisition
16. Give your inferences from Slice and Dice of the data.
17. Find the Correlation between Number of clicks and Cost of Acquisition.
18. On what factors does ROI depend. Use Simple Linear Regression Analysis and interpret the output.
19. On what multiple factors does ROI depend. Use Multiple Regression Analysis and interpret the output.
20. Explain the variances in Number of Clicks, Impression, Engagement rate, Conversion Rate, Cost per acquisition and ROI.  
Create a Dash board of Market Campaign data.

**From the Brand Data given below, download the data set and answer the questions.**

–([Link](#))

21. Analyze Brand Performance by Country
22. Give Descriptives of the given data
23. Which companies have been founded before 2000. Which is the long standing company.
24. Analyze the Brand Valuation Trends over time. Calculate the percentage change in brand valuation for each brand.
25. Name top 10 brands of Electronics, Software industry and their brand value.

26. Give Ranking as per the Brand Value (\$M) in 2021, 2022 and 2023. Did the ranking change or remained the same.
27. Compare the performance of new Vs established brands ( Companies founded before 2010 and after 2010)
28. Create a pivot table and use filters for year, country and genre etc to give inferences on brand value.
29. Slice the data by Genre/Industry
  - (i) Top brands by valuation in each genre
  - (ii) Average brand valuation change for different industries(2022 vs 2023)
  - (iii) How brand rating varies across industries.
30. Dice by Rank or Rating.
  - (i) How brand valuation correlates with rank or rating.
  - (ii) If there are any outliers in terms of valuation compared to rank or rating.
31. Slice by country:
  - (i) Top Brands by valuation from each country
  - (ii) Average Brand Valuation Growth by country.
  - (iii) How brand rating compares across different countries
32. Forecast the brand valuation of the top ten companies for three coming years. Give your inferences.
33. Which country has the higher brand value and the ratings
34. Do you find any correlation in the brand valuation in 2022 and brand valuation in 2023. If give your inferences through scatter plot.
35. Give a detail explanation on Brand Valuation with a dash board.
36. The table given below gives the details of sales of different Two Wheeler Companies in India.

Two Wheeler Domestic Sales		
Company	2009	2010
Hero Honda	3340287	3844614
Bajaj Auto	1235548	1797378
TCS Motor Company	9992555	1321204
Honda	830039	1163194
Yamaha	170712	206404
Suzuki	124190	196928
Mahindra 2 Wheelers	37977	122868
Royal Enfield	38612	38458
KTM India	32815	35684

Find

- (i) Company's market share.
- (ii) Find the relative market share of each company.
- (iii) Draw a pie chart to show the market share of each company
- (iv) Give your inferences.
- (v) Give Growth analysis of the company.
- (vi) Identify the leaders and laggards.
- (vii) How different companies are performing compared to each other.

37. A firm is interested in an experiment to ascertain the effect of advertising on the sale of its product in different stores. It has devised six treatments A, B, C, D, E and F. There are four blocks, each containing six stores of comparable sizes. As a result of the experiment, the following data emerge.

Block Stores	Advertisement A	Advertisement B	Advertisement C	Advertisement D	Advertisement E	Advertisement F
Block I	20	24	28	26	30	24
Block II	32	40	48	50	38	45
Block III	35	41	52	55	58	54
Block IV	87	105	128	131	140	138

The firm is interested to know if advertisement treatments ( reported in the above table) have a significant effect on the sale of the product.

( Conduct Two Way ANOVA)

38. Suppose a manufacturer of a breakfast food is interested to know the effectiveness of three different types of packaging. He puts each kind of packaged breakfast food into five different stores. He finds that during a given week the number of packages sold were as follows.

Packaging 1: 25, 28, 21, 30, 26

Packaging 2: 27, 25, 25, 33, 30

Packaging 3: 22, 29, 26, 20, 30

The mean sales of these three packaging are

Packaging 1: 26

Packaging 2: 28

Packaging 3: 24.

The manufacturer would like to know whether the differences among these means are significant.

(Conduct One way ANOVA)

39. The management of the Punjab National Bank wants to test the effectiveness of an advertising company that is intending to enhance the awareness of the bank's service features. It administered a questionnaire campaign, designed to measure the awareness of services offered. After the advertising campaign designed to measure the awareness of services offered. After the advertising campaign, the bank administered the same questionnaire to the same group of people. Both the before and after advertising campaign scores are given in the following table.

Consumer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Before Ad Campaign	68	77	62	76	80	60	67	74	64	62	67	62	66	77	78	78	74	70	69	68
After Ad Campaign	80	77	69	81	84	66	90	64	70	76	83	81	74	76	79	74	76	66	82	73

Test the hypothesis that there is no significant difference in consumer awareness of bank services offered after the advertising campaign.

(Conduct Paired T-Test)

40. The table given below gives the data on sales of a product, advertising expenditure and personal selling (number of selling agents) in respect of eight sales territories. Find the regression of sales for a given expenditure on advertising and a specific number of selling agents. Also find the sales, if the advertising expenditure is 80 thousand and

when the selling agents are 25 in a territory.

(Conduct Multiple Regression and interpret your results).

Sales data for Different Territory			
Sales territory	Sales ( Lakh Rs.)	Advertising ('000 Rs.)	Personal Selling ( No. of Selling Agents)
1	100	40	10
2	80	40	10
3	60	30	7
4	120	50	15
5	135	60	20
6	90	40	12
7	70	20	8
8	130	60	14
9	110	70	15
10	150	90	15

41. Given the following data, calculate how number of stores, average store size, number of employees impact the total revenue of a particular store.

Year	Number of Stores	Average Store Size ('00 Sq.ft)	Total Revenue	Number of Employees ('000 omitted)
2000	30	60	430	5
2001	40	70	580	7
2002	60	75	700	8
2003	78	80	765	9.2
2004	72	83	820	10.6
2005	75	85	905	11
2006	80	90	1013	12.3
2007	95	120	1270	14.6
2008	98	145	1400	15.2
2009	103	187	1490	16.5
2010	110	164	1510	18.4
2011	114	185	1550	19.8
2012	115	194	598	20
2013	120	210	1614	22.4
2014	132	225	1739	23.8
2015	139	238	1640	25.1
2016	145	210	1690	27.4
2017	152	195	1735	23.8
2018	154	215	1800	24.3
2019	163	220	1736	28
2020	178	228	1810	29.5
2021	183	230	1820	32.5
2022	200	226	1890	35.8

42. For the following data use forecasting tools and forecast the five year future revenue and also give the forecast summary. Give your interpretations.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Total Revenue	430	580	700	765	820	905	1013	1270	1400	1490	1510	1550
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Revenue	598	1614	1739	1640	1690	1735	1800	1736	1810	1820	1890	1900

43. The given data is the sales data from 1991 to 2020. Use 3 year, 5 year and 7 year forecasting methods and find the revenue in 2024 by all the three methods.

Year	Total Revenue	Year	Total Revenue	Year	Total Revenue
1991	230	2001	430	2011	1550
1992	245	2002	580	2012	598
1993	256	2003	700	2013	1614
1994	281	2004	765	2014	1739
1995	285	2005	820	2015	1640
1996	268	2006	905	2016	1690
1997	279	2007	1013	2017	1735
1998	300	2008	1270	2018	1800
1999	338	2009	1400	2019	1736
2000	370	2010	1490	2020	1810

44. The sales of a company in lakh of rupees for the year 2004 to 2010 are given below.

Years	2004	2005	2006	2007	2008	2009	2010
Sales	32	47	65	92	132	190	275

Estimate the sales figures for the year 2013 and 2015 using an equation of the form

$$Y = ab^x, \text{ where } X = \text{years and } Y = \text{sales.}$$

45. The cost of monthly promotions of a company in ('000 Rs. ) is given below.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	318	281	278	250	231	216	223	245	269	302	325	347
2007	3432	309	299	268	249	236	242	262	288	321	342	364
2008	367	328	320	287	269	251	259	284	309	345	367	394
2009	392	349	342	311	290	273	282	305	328	364	389	417
2010	420	378	370	334	314	296	305	330	356	396	422	452

Find the seasonal variation by the method of monthly averages.

46. Find the seasonal variations by ratio-to trend method from the data given below:

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2012	30	40	36	34
2013	34	52	50	44
2014	40	58	54	48
2015	54	76	68	62
2016	80	92	86	82

47. Find the seasonal variations by ratio-to trend method from the data given below:

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2015	35	45	41	39
2016	40	58	54	48
2017	72	88	64	96
2018	82	98	80	100
2019	112	108	80	94
2020	120	115	98	114
2021	128	125	112	120
2022	132	138	115	124

48. Apply ratio to moving average method to ascertain seasonal indices from the following data.



Year and Month	Sales('000 Units)	Year and Month	Sales('000 Units)	Year and Month	Sales('000 Units)	Year and Month	Sales('000 Units)
2007		2008		2009		2010	
Jan	10	Jan	11	Jan	10	Jan	14
Feb	12	Feb	11	Feb	12	Feb	15
Mar	13	Mar	12	Mar	11	Mar	17
Apr	15	Apr	13	Apr	12	Apr	18
May	16	May	14	May	13	May	20
Jun	16	Jun	14	Jun	15	Jun	21
Jul	17	Jul	15	Jul	15	Jul	22
Aug	18	Aug	15	Aug	17	Aug	24
Sep	18	Sep	15	Sep	18	Sep	25
Oct	19	Oct	16	Oct	20	Oct	27
Nov	22	Nov	18	Nov	22	Nov	29
Dec	22	Dec	22	Dec	24	Dec	30

49. Prepare a data set of 20 items with their product attributes with colour, material, Price, product features, marketing claims etc.
50. List the any 5 smart phone attributes and conduct conjoint analysis. Give your inferences.
51. List any 5 Skin care products attributes and conduct conjoint analysis. Give your inferences.
52. List any 5 smart phone attributes and conduct discrete choice analysis.

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**COURSE: (C) HR ANALYTICS – I (HR)**

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**Analyze the Employee Data Set –([Link](#))**

1. Calculate basic statistics for numerical variables like age, annual salary, bonus, and years at the company (mean, median, mode, standard deviation, min, max).
2. How many people are employed in the organization. Use Count IF function to find the number of employees belonging to each of the departments. Also give your analysis gender wise.
3. Count the number of different job titles are available and how many employees are there in each of the job titles.
4. How many analysts are working in the organization. Give an account of Analysts working in different departments and business units. Insert necessary graph.
5. Give the demographics of the employees. Prepare a dash board in excel.

[Type text]

6. Prepare a Pivot table to summarize the demographics of the employees department wise.
7. What is the salary range of the employees department wise. Insert a graph and give your inferences.
8. Use AVERAGEIF function to find the average amount of money paid to employees in a given job title, department or the entire company,
9. Create a chart to visualize the salary distribution.
10. Analyse the pay equity across different demographics like gender or ethnicity, Use Pivot tables and charts.
11. Give the distribution of employees country wise and their salary.
12. Find the Top five job roles and their salary from which country.
13. Which departments has more US citizens.
14. IF an employee has exited , what was the minimum service he has rendered.
15. To which employees the bonus was announced. Analyse the data and give your inferences.
16. Give age wise distribution of the employees in the organization in pivot table.
17. Calculate basic statistics for numerical variables like age, annual salary, bonus, and years at the company (mean, median, mode, standard deviation, min, max).
18. Visualize data using histograms, bar charts, and pie charts to identify patterns and trends.
19. Calculate correlation coefficients between numerical variables (e.g., age and salary, years at company and job satisfaction) to identify relationships.

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20. Create scatter plots to visualize the relationship between two variables.

**Analyze the Recruitment Data Set – ([Link](#))**

21. Give a brief description of the data set and the different attributes of the data.
22. Evaluate the prevalence of Python experience, other skills gender wise.
23. Evaluate the prevalence of highest qualification among the candidates.
24. Find the correlation between internship and the recruitment outcomes.
25. Analyze the internship on salary and recruitment outcomes.
26. Calculate average time taken from application to offer.
27. Calculate the offer acceptance rate – analyze factors influencing offer acceptance by salary, location, job role.
28. Find the recruitment channel effectiveness.
29. Establish the relationship between candidate scores and other variables ( experience, qualifications)
30. Analyze salary offers based on factors like experience qualifications and location.
31. Identify the potential biases in the recruitment process
32. Calculate descriptive statistics for numerical variables.
33. Create histograms, bar charts and scatter plots and other visualization to explore data patterns.
34. Analyze age Experience Years ad salary.
35. From which source has the highest offer letters released and accepted.

**Analyze the Employee Attrition Rate Data set- ([Link](#))**

36. Calculate descriptive statistics – mean, median, mode and standard deviation for

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numerical variables.

37. Analyze categorical variables and give inferences.
38. Examine relationships between categorical variables through pivot tables.
39. Identify relationships between numerical variables.
40. Identify factors contributing to work life balance
41. Assess the impact of worklife balance on attrition.
42. Calculate average tenure by department and job role.
43. Identify potential talent gaps like age, experience and skills. How is their impact on  
Performance rating
44. Identify High-Potential employees based on performance and tenure.
45. Examine salary differences based on job role, department, experience and other factors.
46. Assess trends in salary growth.
47. Correlate performance ratings with other variables
48. Identify factors influencing job satisfaction.
49. Calculate gender wise performance satisfaction with respect to current role and company.
50. What is the percent of salary hike and performance rating and attrition.
51. Compare gender, job satisfaction, monthly income and attrition.
52. Analyze job role, satisfaction and performance rating and percent salary hike on attrition.
53. Calculate attrition rate department wise, job role and other relevant categories.

Prepare a dash board of attrition.

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1. Ambitious enterprises is currently working at 50% capacity and produces 10000 units. At 60% working, raw material cost increases by 2% and selling price falls by 2%.  
At 80% capacity, raw material cost increases by 5% and selling price falls by 5%.  
At 50% working capacity, the product cost is Rs. 180 per unit and is sold at Rs. 200 per unit.

The unit cost of Rs. 180 is made up as follows:

	Rs.
Materials	100
Wages	30
Factory Overhead	30 (40% fixed)
Administration overhead	20 (50% fixed)

Prepare a marginal cost statement showing the estimated profit at 60% and 80% capacity.

2. The following figures relate to two products A and B dealt by the firm:

	Product A	Product B
Annual Sales	25,00,000	25,00,000
Annual Profits	3,50,000	3,50,000
Fixed Costs	9,00,000	2,50,000
Variable Cost	12,50,000	19,00,000

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Prepare a break even chart for each product and find out the break even point.

3. From the following particulars of XYZ company

Output (units)	Variable	Selling Price		Total sales in Rs.
	cost(Per Unit) In Rs.	(Per Unit) In Rs.		
0	15	15		0
5000	13	15		75000
10000	12	15		150000
15000	10	15		225000
20000	10	15		300000
25000	8	15		375000
40000	7	15		600000

Plot the following data on a graph (break- even chart) and determine

- Break Even Point
  - Profit if the output is 30000 units
  - If the present value of sales is Rs. 650000, what is the margin of safety on the basis of data given.
4. Calculate from the following data (i) value of the output at which the business breaks even and (ii) the percentage of capacity at which it breaks even:

	Budget for the year	
	2021 based on 100% capacity ( in Rs.)	Estimated shut down expenditure ( in Rs.)
Direct Expenses	209964.00	
Direct Materials	244552.00	
Works Expenses	181820.00	93528.45
Administrative Expenses	30000.00	20508.60
Selling & Distribution Expenses	61188.50	40188.00
Net Sales	840000.75	

5. ABC Company Ltd produces and markets industrial containers and packing cases. Due to competition the company proposes to reduce the selling price. If the present level of profit to be maintained, indicate the number of units to be sold if the proposed reduction in selling price is (a) 5% (b) 10% (c) 15% (d) 20%  
The following additional information is available

[Type text]

	In Rs.	In Rs.
Present Sales (30,000 Units)		300000
Variable Cost	180000	
Fixed cost	70000	250000
Net Profit		50000

6. A mechanical toy factory presents the following information for the year

	In Rs.
Material Cost	120000
Labour Cost	240000
Fixed Overhead	120000
Variable Overhead	60000
Units Produced	12000
Selling Price Per Unit	50

The available capacity is a production of 20,000 units per year. The firm has an offer for the purchase of 5,000 additional units at a price of Rs. 40 per unit. It is expected that by accepting this offer there will be a saving of Rs. 1 per unit in material cost on all units manufactured; the fixed overhead will increase by Rs.35000 and the overall efficiency will drop by 2% on all production.

Draft a report to the management giving your recommendations as to whether this offer can be accepted.

7. ABC Ltd. Having installed capacity of 1,00,000 units of a product is currently operating at 60% utilization. At current levels of input prices, FOB unit costs ( after taking credit for applicable export incentives) work out as follows:

Capacity Utilization( Per cent)	FOB Unit costs in Rs.
60	98
70	97
80	92
90	87
100	82

The Company has received three foreign offers from different sources as under:

Source X: 5000 Units @ Rs. 60 per unit FOB

Source Y: 10000 Units @ Rs. 55 Per unit FOB

Source Z: 10000 Units @ Rs. 52 Per unit FOB

Advice the company as to whether any or all the export order should be accepted or not.

8. The following figures are extracted from the records of XYZ Company Ltd.

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*Smita Sambrani*  
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Department ( In '000 Thousand Rs.)						
	A	B	C	D	Total (Rs.)	
Sales		100	200	300	400	1000
Costs:						
Direct Material		40	100	180	290	610
Direct Labour		20	75	90	70	255
Direct Expenses		2	3	4	5	14
Prime Cost		62	178	274	365	879
Over Heads:						
Variable		10	15	12	10	47
Fixed		5	10	5	4	24
Total Cost		77	203	291	379	950
Profit/Loss		23 (-3)		9	21	50

On the basis of the above information, the management is inclined to discard Department B. What are your inferences.

9. The Directors are contemplating the purchase of a new machine to replace an old one which has been in the factory for 5 years. From the following information prepare a statement for submission to the Board of Directors showing the effect of installation on costs and profits and comment on the results shown. Ignore the interest.

	Old Machine	New Machine
Purchase Price	Rs. 40000	Rs. 60000
Estimated Life of Machine	10 Years	10 years
Machine running hours per annum	2000	2000
Units produced per year	24	36
	Rs.	Rs.
Wages per running hour	30	52.5
Power per annum	2000	4500
Consumable stores per annum	6000	7500
All other charges per annum	8000	9000
Material cost per unit	5	5
Selling price per unit	12.50	12.50

10. The following information at 50% capacity is given. Prepare a flexible budget and forecast the profit and loss at 60%, 70%, 80% and 90% capacity.

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Expenses at 50% Capacity in Rs.	
Fixed Expenses:	
Salaries	50000
Rent and Taxes	40000
Depreciation	60000
Administrative Expenses	70000
Variable Expenses:	
Materials	200000
Labour	250000
Others	40000
Semi Variable Expenses:	
Repairs	100000
Indirect Labour	150000
Others	90000

It is estimated that fixed expenses will increase by 5% above 75% capacity and remain constant below 75%. Semi Variable Expenses will not change between 45% and 60% capacity, will rise by 10% between 60% and 75% capacity, a further increase of 5% when capacity crosses 75%. The estimated sales at various levels of capacity are:

Capacity	Sales(In Rs.)
60%	1100000
70%	1300000
80%	1500000
90%	1800000

11. The cost of an article at a capacity level of 10000 units is given under A below. For a variation in capacity above or below this level, the individual expenses vary as indicated in B below:

	A(In Rs.)	B
Materials	50000	100% Varying
Labour	30000	100% Varying
Power	3000	80% Varying
Repair and Maintenance	3500	80% Varying
Stores	2000	100% Varying
Inspection	800	25% Varying
Depreciation	10000	100% Varying
Administration Overhead	3600	25% Varying
Selling Overhead	4500	50% Varying
Total	107400	
Cost per Unit	10.74	

[Type text]

*Smita Sambrani*  
 CHAIRMAN  
 BOS IN BUSINESS MANAGEMENT  
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You are required to prepare a flexible budget at production levels of 8000 units, 12000 units and 15000 units.

12. A Corporation Pvt Ltd. Uses 12 different items in the manufacturing process. Their annual requirement and unit costs are given as follows.

Items	Quantity	Unit cost (in Rs.)
1	9000	10
2	300	750
3	5400	210
4	3800	90
5	12400	10
6	90	1200
7	600	400
8	22000	2
9	750	175
10	1000	250
11	7600	75
12	10000	4

Apply ABC analysis and give a graphical representation.

13. Find out the Economic Order Quantity (EOQ) from the following particulars and also show a graph identifying economic order quantity.

Annual Usage	10000 units
Cost of material per Unit	Rs. 25
Cost of placing and receiving one order	Rs.50
Annual Carrying cost of one unit	10% of Inventory value

14. EXE Limited has received an offer of quantity discount on its order of materials as under:

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Price Per Ton (In Rs.)	Tonnes ( In No.s)
1200	Less than 500
1180	500 and less than 1000
1160	1000 and less than 2000
1140	2000 and less than 3000
1120	3000 and above

(a) The annual requirement for the material is 5000 tones. The ordering cost per order is Rs. 1200 and the stock holding cost is estimated at 20% of material cost per annum. You are required to compute the most economical purchase level.

(b) What will be your answer to the above question if there are no discounts offered and the price per tonne is Rs. 1500?

15. From the data given below, calculate

- (i) Material Cost Variance
- (ii) Material Price Variance
- (iii) Material Usage

Products	Standard Quantity	Standard Price	Actual Quantity	Actual Price
A	1050	2.50	1100	2.25
B	1500	3.25	1400	3.50
C	2100	3.50	2000	3.75
D	1850	1.50	2000	1.00
E	2500	3.75	2200	4.00
F	2200	4.00	2500	3.75

16. A factory is currently working to 50% capacity and produces 10,000 units. Estimate the profits of the company when it works at 60% and 80% capacity and offer your inferences.

At 60% working, raw material cost increases by 2% and Selling price falls by 2%.

At 80% working, raw material cost increases by 5% and the Selling Price falls by 4%

At 50% capacity working the product costs Rs. 180 per unit and is sold at Rs. 200 per unit. The unit cost of Rs. 180 is made up as follows:

Particulars	Amount in Rs.
Material	120
Labour	40
Factory overhead	35( 40% Fixed)
Administrative Overhead	20(50% fixed)

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17. ABC Ltd manufacturers four brands of toys – A, B, C, D. If the company limits the manufacture to just one brand, the monthly production will be:

A – 50000 Units

B – 100000 Units

C – 150000 Units

D - 300000 Units

You are given the following information from which you are requested to find out the profit or loss made on each brand showing clearly the following elements –

- (a) Direct Cost
- (b) Works Cost
- (c) Total cost

Particulars	A	B	C	D
Actual Production ( Units)	6750	18000	40500	94500
Direct Wages( In Rs)	15000	27500	37500	105000
Direct Materials cost ( In R	50000	92500	127500	380000
Selling Price Per unit ( In R:	20	15	10	8

Factory overhead expenditure for the month was Rs. 1,62000. Selling and Distribution cost should be assumed @ 20% of works cost. Factory overhead expenses should be allocated to each brand on the basis of units which could have been produced in a month when single brand production was in operation.

18. X Ltd. Has furnished the following information for the month of January 2022.

	Budgeted	Actual
Number of working days	22	25
Man hours per day	4000	4500
Output per man hour in units	2.5	3.5
Overheads (Rs)	55000	65000

Calculate all the fixed overhead variances and give your inferences.

19. The particulars obtained from the records of M/s Jeevan Industries for the year 2019 are given below:

[Type text]

Particulars	Amount in Rs.
Opening Stock	
Raw Materials	1,40,000
Finished goods(1,000) Units	20,000
Purchases	2,10,000
Factory wages	3,80,000
Factory Overheads	70,000
Office Overheads	40,000
Selling Overheads	9,600
Sales (3,200 Units)	9,28,000
Closing Stock	
Raw Materials	19,600
Finished Goods	1,64,000

Prepare a cost sheet showing prime cost, factory cost, cost of production, total cost and sales per unit.

During 2020, the industry expects to receive an order for 5000 units. It is estimated that

- (i) The prices of raw materials and factory wages will rise by 15% and 10% respectively.
- (ii) There will be no change in the total factory overheads and office overheads.
- (iii) Selling overheads per unit will remain the same.

Prepare an estimated cost sheet. The factory intends to earn the same rate of profit on cost.

20. Popeye Company is a metal and wood cutting manufacturer, selling products to the home construction market. Consider the following data for the month of October 2020.

[Type text]

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Particulars	Amount in Rs.
Sandpaper	5,000
Material-handling costs	1,75,000
Lubricants and coolants	12,500
Misc. indirect manufacturing labour	1,00,000
Direct manufacturing labour	7,50,000
Direct materials, October 1, 2020	1,00,000
Direct materials, October 31, 2020	1,25,000
Finished goods, October 1, 2020	2,50,000
Finished goods, October 31, 2020	3,75,000
Work in process, October 1, 2020	25,000
Work in process, October 31, 2020	35,000
Plant-leasing costs	1,35,000
Depreciation-plant equipment	90,000
Property taxes on plant equipment	10,000
Fire insurance on plant equipment	7,500
Direct materials purchased	11,50,000
sales revenues	34,00,000
Marketing promotions	1,50,000
Marketing salaries	2,50,000
Distribution costs	1,75,000
Customer-Service Costs	2,50,000

Prepare

- (i) An income statement with a separate supporting schedule of cost of goods manufactured.
- (ii) For all manufacturing items, indicate by V or F whether each is basically a variable cost or a fixed cost (where the cost object is a product unit)

21. The following is the Trial Balance of M/s Kasturi Agencies as on 31<sup>st</sup> March 2022. Prepare Profit and Loss Account for the year ending 31<sup>st</sup> March 2022.

Particulars	Amount	Particulars	Amount
Capital	35,000	Returns outward	110
Buildings	17,750	Salaries	1110
Machinery	9250	Discount allowed	200
Debtors	7000	Stock(1-7-2021)	16500
General Expenses	800	Bills Payable	5000
Rent Paid	3710	Sales	63500
Drawings	650	Purchases	46850
Electric Charges	190	Wages	2500
Carriage Inward	850	Cash in Hand	1800
Cash at Bank	3000	Sundry Creditors	10000
Returns Inward	450		

Closing stock is valued at Rs. 18210.

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22. From the following information taken from Ved & Co . prepare a Balance Sheet as on that date taking into consideration the following adjustments.

- (i) Closing Stock Rs. 9500
- (ii) One Quarter of insurance premium fall in next year
- (iii) Provide 10% depreciation on furniture
- (iv) Loan to X carries 8% interest p.a.
- (v) Loan from Y carries 6% interest p.a.
- (vi) Goods worth Rs.500 have been taken by the proprietor for private use
- (vii) Provide 5% for bad and doubtful debts
- (viii) Salaries include salary to proprietor @Rs. 200 per month

Debit Balances	Rs.	Credit Balances	Rs.
Stock(1-1-2016)	6000	Capital	40000
Salaries	6000	Returns outward	500
Drawings	6000	Loan from Y	5000
Carriage inward	1000	Rent Outstanding	100
Carriage outward	500	Creditors	13000
Returns inward	800	Liabilities for other expenses	1900
Loan to X	3000	Provision for bad debts	1000
Rent	1200	Discount	300
Purchases	60000	Sales	73700
Debtors	30000	Rent by Sub-letting	500
Advertisement	3000		
Bad debts	500		
Discount	600		
Cash	200		
Furniture	3000		
Goodwill	5000		
Wages	100		
Insurance Premium	600		
Bank	8500		

23. The following balances were taken from the books of Shri Ram Prasad on 31<sup>st</sup> March 2017.

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Particulars	Rs.	Particulars	Rs.
Capital	100000	Rent(Cr.)	2100
		Railway Freight & Other	
Drawings	17600	Expenses on Goods Sold	16940
Purchases	80000	carriage inward	2310
Sales	140370	Office expenses	1340
Purchase Returns	2820	Printing and Stationery	660
Opening Stock	11460	Postage & Telegrams	820
Bad Debts	1400	Sundry Debtors	62070
Bad Debts Reserve(1st April, 2016)	3240	Sundry Creditors	18920
Rates & Insurance	1300	Cash at Bank	12400
Discount(Cr.)	190	Cash in Hand	2210
bills Receivable	1240	Office Furniture	3500
Sales Returns	4240	Salary & Commission	9870
Wages	6280	Additions to Building	7000
Buildings	25000		

Prepare trading and profit and loss account end balance sheet as on 31st March 2017, after keeping in view these adjustments:

- (i) depreciate old buildings at 2 ½ % and new additions to buildings at 2% and office furniture at 5%.
  - (ii) Write off further bad debts Rs. 570.
  - (iii) Increase the bad debts reserve to 6% of debtors.
  - (iv) On 31st March 2017, Rs. 570 are outstanding for salary
  - (v) rent receivable Rs. 200.
  - (vi) Interest on capital at 5%
  - (vii) on 31st March 2017 stock is valued at Rs.14,290.
  - (viii) Unix paid insurance Rs. 240
24. The following is the statement of Profit and Loss of Sanyasi Ltd. For the years ended 31<sup>st</sup> March 2017 and 31<sup>st</sup> March 2018.

Particulars	2017	2018
<b>Revenue from Operations</b>		
Gross Sales	815000	725000
Returns	15000	25000
Other Income	8050	1200
<b>Expenses</b>		
Cost of Material Consumed	615000	595000
Employee Benefits Expenses	12500	12700
Depreciation and Amortization Expen	1940	1750
Other Expenses	24000	23000

[Type text]

Prepare a Common Size Statement of Profit and Loss for the years 2017 and 2018 and interpret your results.

25. The following is the Income Statement of ABC & Co. for the years 2020 and 2021. Prepare the Common Size Income Statement and give your inferences.

Perticulars	2020	2021
<b>Revenue from Operations</b>		
Gross Sales	725342.45	815000.35
Returns	15000.00	25225.45
Other income	8050.25	15256.90
Total revenue	748392.70	855482.70
<b>Expenses</b>		
Cost of materials consumed	505125.00	589000.85
Purchases of Stock -in trade	60000.00	63570.00
Changes in inventories of finished goods, Work in Progress	45897.20	23650.80
Stock in trade employee benefit expense	30890.00	42280.00
Finance costs	12500.00	15560.00
Depreciation and amortization expense	38890.00	58690.80
Other Expenses	1940.50	2390.00
Profit before tax	19500.00	23450.00
Tax	20%	
Profit after tax	26920.00	29512.20

26. Choose any company from screener.in and prepare Common Size Statement for the Profit and Loss Statement for 5 years data. Interpret the results.
27. Convert the following Balance Sheets into Common Size Balance Sheet and interpret your results.

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Particulars	Zim & Co.	Zummy & Co.
<b>I. Equity and Liabilities</b>		
<b>Shareholder's Funds:</b>		
Equity Share Capital	200000	300000
Preference Share Capital	200000	250000
Reserves and Surplus	100000	120000
<b>Non-Current Liabilities</b>		
12% Debentures	100000	200000
<b>Current Liabilities</b>		
Sundry Creditors	150000	410000
Bank Overdraft		50000
Unpaid Dividend	50000	70000
<b>Total</b>	<b>800000</b>	<b>1400000</b>
<b>II. Assets</b>		
<b>Non-Current Assets</b>		
<b>Fixed Assets:</b>		
Land and Building	80000	120000
Plant and Machinery	300000	625000
Investments	100000	200000
<b>Current Assets</b>		
Stock	150000	200000
Sundry Debtors	100000	120000
Cash and Bank Balance	70000	135000
<b>Total</b>	<b>800000</b>	<b>1400000</b>

28. Convert the given Balance Sheets of the years 2017 and 2018 of the Ved & Co company. Prepare Common Size Balance Sheet and give your interpretations about the company and their investments.

Particulars	2018	2017
<b>I. Equity and Liabilities</b>		
<b>Shareholder's Funds:</b>		
Equity Share Capital	757650	450000
Preference Share Capital	275000	200000
Reserves and Surplus	100000	120000
<b>Non-Current Liabilities</b>		
12% Debentures	250000	100000
<b>Current Liabilities</b>		
Sundry Creditors	150000	410000
Bank Overdraft	17350	20000
Unpaid Dividend	50000	75000
<b>Total</b>	<b>1600000</b>	<b>1375000</b>
<b>II. Assets</b>		
<b>Non-Current Assets</b>		
<b>Fixed Assets:</b>		
Land and Building	500000	120000
Plant and Machinery	475000	625000
Investments	155000	200000
<b>Current Assets</b>		
Trade Receivables	45000	
Stock	175000	200000
Sundry Debtors	150000	95000
Cash and Bank Balance	100000	135000
<b>Total</b>	<b>1600000</b>	<b>1375000</b>

29. Choose any company from screener.in and prepare Common Size Statement Balance Sheet Statement for 5 years data. Interpret the results.

[Type text]

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30. The following are the balance sheets of concern as at 31<sup>st</sup> March 2021 and 2020. Prepare a comparative Balance sheet and study the financial position of the concern.

Particulars	31st March, 2021	31st March, 2020
<b>Equity and Liabilities</b>		
<b>Share Holder's funds</b>		
Share Capital	800000	600000
Reserves ad Surplus	222000	330000
<b>Non-Current Liabilities</b>		
Debentures	300000	200000
Long Term Moans on Mortgage	200000	150000
<b>Current Liabilities</b>		
Trade Payables:		
Bills Payable	45000	50000
Sundry Creditors	120000	100000
Other Current Liabilities	10000	5000
	<u>1697000</u>	<u>1435000</u>
<b>Assets</b>		
<b>Non Current Assets</b>		
Fixed assets		
Land and Building	270000	370000
Plant and Machinery	600000	400000
Furniture and Fixtures	25000	20000
Other Fixed Assets	30000	25000
<b>Current Assets</b>		
Inventories ( Stock)	350000	250000
Trade Receivables:		
Bills Receivables	90000	150000
Sundry Debtors	250000	200000
Cash in Hand and at Bank	80000	20000
Other Current Assets ( Prepaid Exp)	2000	
	<u>1697000</u>	<u>1435000</u>

31. From the table in Q.25 Prepare a Comparative statement of the Income statement for years and give your inferences.
32. From the table in Q.27 Prepare a Comparative Balance sheet for the companies and give your inferences.
33. Choose two different companies from the same sector, from screener.in and prepare a comparative statement analysis for the year 2023 of Income Statement.
34. Choose any two companies from the same sector, from screener.in and prepare a comparative statement analysis for the year 2023 of the Balance sheet.

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35. The following are the extracts from the Balance sheet of Bhuvan Ltd., as on 31<sup>st</sup> March 2021.

Particulars			
I. Equity and Liabilities		II. Assets	
Shareholder's Funds:		Non-Current Assets	
Equity Share Capital	757650	Fixed Assets:	
Preference Share Capital	275000	Land and Building	500000
Reserves and Surplus	100000	Plant and Machinery	475000
Non-Current Liabilities		Investments	155000
10% Debentures	250000	Current Assets	
Current Liabilities		Trade Receivables	45000
Sundry Creditors	150000	Stock	175000
Bank Overdraft	17350	Sundry Debtors	150000
Unpaid Dividend	50000	Cash and Bank Balances	100000
Total	1600000	Total	1600000

Calculate and give your comments

- (i) Debt-Equity Ratio (Long-term Debt to Equity)
- (ii) Proprietary Ratio
- (iii) Solvency Ratio
- (iv) Fixed Assets to Proprietor's Funds Ratio
- (v) Fixed Assets Ratio
- (vi) Current Assets to Proprietors Funds Ratio

36. The following is the Income Statement of X Ltd. As on 31<sup>st</sup> March 2020 and 2021.

Particulars	2020	2021
Revenue from Operations		
Gross Sales	725342.45	815000.35
Returns	15000.00	25225.45
Other income	8050.25	15256.90
Total revenue	748392.70	855482.70
Expenses		
Cost of materials consumed	505125.00	589000.85
Purchases of Stock -in trade	60000.00	63570.00
Changes in inventories of finished goods, Work in Progress	45897.20	23650.80
Stock in trade employee benefit expense	30890.00	42280.00
Finance costs	12500.00	15560.00
Depreciation and amortization expense	38890.00	58690.80
Other Expenses	1940.50	2390.00
Profit before tax	19500.00	23450.00
Tax	20%	
Profit after tax	26920.00	29512.20

Calculate the profitability Ratios and Comment on the company's Financials.

- (i) Gross Profit Ratio
- (ii) Operating Ratio

[Type text]

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- (iii) Expense Ratio
- (iv) Net Profit Ratio
- (v) Operating Profit Ratio

37. XYZ Limited is an all-equity firm which has an equity capital of Rs. 15,00,000 where the par value of the share is Rs. 10. The firm is in need of another Rs.36,00,000 to finance its activities which would generate an EBIT of Rs. 9,00,000 after expansion. The finance manager has drawn up the following four alternatives.

Alternative (1): Raise the entire amount required as equity

Alternative (2): 50% of the required amount as equity and the remaining as debt @8%p.a.

Alternative (3): 40% as equity, 30% as debt @ 7.5% and the remaining funds as preference

share capital @10% rate of dividend.

Alternative (4): 30% as equity, 40% as debt @ 8% pa., and the remaining funds as preference capital @ 9.5% rate of dividend.

The preference share has a par value of Rs. 100 and the applicable tax rate is 30%. You are required to advise which of the alternatives is better.

38. From the data given below,

[Type text]

	2020	2019	2018
	Amount	Amount	Amount
Income Statement	in Cr.	in Cr.	in Cr.
Revenue	5000	4000	3780
Cost of Goods Sold	2670	2130	1890
Interest Expense	43	380	320
Tax Expense	25	200	150
Income from Cont Operations	2330	1870	1890
Net Income	2262	1290	
<b>Balance Sheet</b>			
Cash	2070	1359	1123
Short term investments	722	315	265
Accounts receivables	2340	2134	1679
Inventory	2500	1222	985
Current assets	7632	5030	4052
Long term investments	100	435	
Net fixed Assets	8632	5465	
Other assets	0	0	
Total assets	8632	5465	4300
Current Liabilities	2221	1543	1367
Total Liabilities	2411	2285	1863
Total Stock Holders' Equity	4000	3500	1070
<b>Cash Flow</b>			
Cash Flow from Operations	3150	2814	2345
Dividends paid	120	87	112
Interest Paid	43	31	33
<b>Share Information</b>			
Market price at Year End	110	96	78
Earnings Per share-Basic	3.5	3.5	2.15
Shares Outstanding	0	0	0

Calculate

- (i) Growth Ratios
- (ii) Profitability Ratios
- (iii) Activity Ratios
- (iv) Solvency Ratios
- (v) Liquidity Ratios

39. The table shows the income statement for Tata motors Ltd. for the fiscal years ending March 2020 through March 2024, which is taken from

<https://ticker.finology.in/company/TATAMOTORS>.

**Profit & Loss** (All Figures in Cr. Adjusted EPS in Rs.)

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PARTICULARS	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24
Net Sales	43,928.17	30,175.03	47,263.68	65,757.33	73,303.08
Total Expenditure	44,611.09	28,741.31	45,764.75	61,226.28	65,687.97
Operating Profit	-682.92	1,433.72	1,498.93	4,531.05	7,615.11
Other Income	1,414.79	440.64	659.91	820.94	1,149.88
Interest	1,973	2,110.83	2,121.73	2,047.51	1,705.74
Depreciation	3,375.29	1,730.70	1,760.57	1,766.86	2,016.84
Exceptional Items	-2,510.92	-307.55	83.41	-282.82	2,808.41
Interest	1,973	2,110.83	2,121.73	2,047.51	1,705.74
Depreciation	3,375.29	1,730.70	1,760.57	1,766.86	2,016.84
Exceptional Items	-2,510.92	-307.55	83.41	-282.82	2,808.41

- (i) Forecast the income statement for TATAMOTORS LTD for the fiscal year ending March 2027.
- (ii) Use an appropriate forecasting method to justify your forecasts for each line item on the income statement.
- (iii) Consider factors such as industry trends, economic conditions, and the company's historical performance when making your forecasts.
- (iv) Present your forecasts in a clear and concise format.

40. The table shows the Balance Sheet statement for TATAMOTORS Ltd. for the fiscal years ending March 2020 through March 2024, which is taken from <https://ticker.finology.in/company/TATAMOTORS>.

**Balance Sheet** (All Figures are in Crores.)

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PARTICULARS	Mar-20	Mar-21	Mar-22	Mar-23	Mar-24
<b>Equity and Liabilities</b>					
Share Capital	719.54	765.81	765.88	766.02	766.5
Total Reserves	17,668.11	18,290.16	19,178.27	21,703.83	29,376.55
Borrowings	14,776.51	16,326.77	14,102.74	10,445.70	5,235.67
Other N/C liabilities	3,614.89	3,425.37	2,860.17	1,574.43	1,820.21
Current liabilities	25,810.82	26,251.55	26,992.81	25,803.53	27,326.16
Total Liabilities	62,589.87	65,059.66	63,899.87	60,293.51	64,525.09
<b>Assets</b>					
Net Block	25,207.98	26,423.10	14,075.76	14,542.32	14,344.05
Capital WIP	1,755.51	1,400.82	585.21	575.65	645.03
Intangible WIP	2,739.29	1,605.64	882.03	509.3	588.92
Investments	15,730.86	16,114.91	29,256.39	29,181.62	30,315.57
Loans & Advances	1,834.27	1,641.18	1,429.66	1,575.52	1,598.83
Other N/C Assets	1,944.27	2,240.22	2,051.21	2,409.15	1,861.63
Current Assets	13,377.69	15,633.79	15,619.61	11,499.95	15,171.06
Total Assets	62,589.87	65,059.66	63,899.87	60,293.51	64,525.09

- (i) Forecast the Assets side and Liabilities side for TATAMOTORS LTD for the fiscal year ending March 2027.
- (ii) Use an appropriate forecasting method to justify your forecasts for each line item on the income statement.
- (iii) Consider factors such as industry trends, economic conditions, and the company's historical performance when making your forecasts.
- (iv) Present your forecasts in a clear and concise format.

41. The data given below is the Quarterly report of HDFCBANK Ltd.

PARTICULARS	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24
Interest Earned	45,119.36	48,586.81	67,698.39	70,582.61	71,472.75
Other Income	8,731.18	9,229.86	10,707.84	11,137.04	18,166.25
Interest Expended	21,767.53	24,987.74	40,313.16	42,111.27	42,395.93
Operating Expenses	13,462.11	14,056.91	15,399.19	15,961.08	17,968.83
Total Provisions	2,685.37	2,860.03	2,903.83	4,216.64	13,511.64
Profit Before Tax	15,935.53	15,911.99	19,790.05	19,430.66	15,762.60
Tax	3,888.08	3,960.22	3,813.94	3,058.12	-749.25
Net Profit	12,047.45	11,951.77	15,976.11	16,372.54	16,511.85
Net NPA %	0.27	0.3	0.35	0.31	0.33
Gross NPA %	1.12	1.17	1.34	1.26	1.24
Return on Assets %	0.53	0.51	0.5	0.49	0.49
NPM %	26.7	24.6	23.6	23.2	23.1

[Type text]

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42. Conduct vertical analysis for the following data.

**Profit & Loss** (All Figures in Cr. Adjusted EPS in Rs.)

<b>PARTICULARS</b>	<b>Mar-19</b>	<b>Mar-20</b>	<b>Mar-21</b>	<b>Mar-22</b>	<b>Mar-23</b>
Interest Earned	98,972.05	1,14,812.65	1,20,858.23	1,27,753.12	1,61,585.54
Other Income	17,625.88	23,260.82	25,204.89	29,509.90	31,214.83
Interest Expended	50,728.83	58,626.40	55,978.66	55,743.53	74,743.32
Operating Expenses	26,119.37	30,697.53	32,722.63	37,442.19	47,652.08
Total Provisions	7,550.08	12,142.39	15,702.85	15,061.83	11,919.66
Profit Before Tax	32,199.66	36,607.16	41,658.99	49,015.48	58,485.30
Taxes	11,121.49	10,349.84	10,542.46	12,054.12	14,376.60
Net Profit	21,078.17	26,257.32	31,116.53	36,961.36	44,108.70
Adjusted EPS (Rs.)	38.7	47.89	56.44	66.65	79.05

Give your inferences.

43. Conduct Horizontal Analysis for the following data

<b>PARTICULARS</b>	<b>Mar-19</b>	<b>Mar-20</b>	<b>Mar-21</b>	<b>Mar-22</b>	<b>Mar-23</b>
Interest Earned	98,972.05	1,14,812.65	1,20,858.23	1,27,753.12	1,61,585.54
Other Income	17,625.88	23,260.82	25,204.89	29,509.90	31,214.83
Interest Expended	50,728.83	58,626.40	55,978.66	55,743.53	74,743.32
Operating Expenses	26,119.37	30,697.53	32,722.63	37,442.19	47,652.08
Total Provisions	7,550.08	12,142.39	15,702.85	15,061.83	11,919.66
Profit Before Tax	32,199.66	36,607.16	41,658.99	49,015.48	58,485.30
Taxes	11,121.49	10,349.84	10,542.46	12,054.12	14,376.60
Net Profit	21,078.17	26,257.32	31,116.53	36,961.36	44,108.70
Adjusted EPS (Rs.)	38.7	47.89	56.44	66.65	79.05

Give your inferences.

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44. The Table given below is the historical data on Crude Oil Prices on the first Friday of each month from January 2006 through June 2008. Using Forecasting tools forecast the demand when the price is 315 along with the forecast sheet for the following data.

Price	Demand
50	19964.09
60	19706.85
70	20240.83
80	19698.81
90	20095.81
100	19390.99
110	19430.07
120	19273.69
130	18716.38
140	18925.36
150	19484.78
160	18934.88
170	18915.77
180	18893.37
190	18961.62
200	18443.29
210	18811.98
220	18561.92
230	18158.62
240	18412.56
250	17771.39

45. The following is the total sales in Crores in Rupees of Tata motors Ltd. Forecast the sales for the next three years through the Forecast tool. Also use Regression analysis tool to forecast the and give your inferences.

Year	2008	2009	2010	2011	2012	2013	2014	2015
Total Sales in Cr.	36,593.05	35,593.05	47,807.42	54,005.40	44,373.04	33,906.97	35,890.50	42,845.47
Year	2016	2017	2018	2019	2020	2021	2022	2023
Total Sales in Cr.	44,363.60	58,831.41	68,764.88	43,485.76	46,559.39	46,880.97	65,298.84	73,303.08

46. Select any company's Income Statement from screener.in and forecast the Income statement. Give your inferences.
47. Select any company's Balance Sheet from screener.in and forecast the Liabilities side and assets side. Give your inferences.
48. The following data is the U.S. All Grades Retail Gasoline Prices (Dollars per Gallon)

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	2.769	2.699	2.824	2.9	2.89	2.785	2.782	2.783	2.757	2.853	2.913	3.048
2011	3.148	3.264	3.615	3.852	3.96	3.735	3.705	3.696	3.667	3.506	3.443	3.326
2012	3.44	3.64	3.907	3.958	3.791	3.596	3.498	3.78	3.91	3.812	3.521	3.381
2013	3.391	3.736	3.779	3.638	3.675	3.689	3.661	3.645	3.604	3.42	3.322	3.357
2014	3.392	3.434	3.606	3.735	3.75	3.766	3.688	3.565	3.484	3.255	2.997	2.632
2015	2.208	2.301	2.546	2.555	2.802	2.885	2.88	2.726	2.462	2.387	2.26	2.144
2016	2.057	1.872	2.071	2.216	2.371	2.467	2.345	2.284	2.327	2.359	2.295	2.366
2017	2.458	2.416	2.437	2.528	2.503	2.46	2.414	2.494	2.761	2.621	2.678	2.594
2018	2.671	2.705	2.709	2.873	2.987	2.97	2.928	2.914	2.915	2.943	2.736	2.457
2019	2.338	2.393	2.594	2.881	2.946	2.804	2.823	2.707	2.681	2.724	2.693	2.645
2020	2.636	2.533	2.329	1.938	1.961	2.17	2.272	2.272	2.274	2.248	2.2	2.284
2021	2.42	2.587	2.898	2.948	3.076	3.157	3.231	3.255	3.272	3.384	3.491	3.406
2022	3.413	3.611	4.322	4.213	4.545	5.032	4.668	4.087	3.817	3.935	3.799	3.324
2023	3.445	3.501	3.535	3.711	3.666	3.684	3.712	3.954	3.958	3.742	3.443	3.257

- (i) Find the trends in the oil prices over time.
- (ii) Visualize the data in time series graph. Find the upward trend and downward trend.
- (iii) Are there any seasonal patterns in the data.
- (iv) Are there any outliers in the data.
- (v) Do price tend to fluctuate more in certain times of the year?
- (vi) How much of monthly and yearly variances are possible. Interpret your analysis.

calculate standard deviation to see how much the monthly closing prices deviate from the average price over this twelve year period. A higher standard deviation indicates greater volatility, while a lower standard deviation indicates that the prices were more stable.

49. The balance sheet of R & Co Pvt. Ltd., as on 31<sup>st</sup> March 2017 and 2018 are presented as follows:

	2017	2018
<b>Assets</b>		
Fixed Assets	70,000	88000
Investment	40000	40000
Cash	6000	8000
Debtors	7000	12000
prepaid Rent	3600	2400
Stock	32000	28000
	<u>158600</u>	<u>178400</u>
<b>Liabilities:</b>		
Equity Capital	50000	60000
Profit and Loss Account	26000	20900
Debentures	35000	35000
Accumulated Depreciation	20000	21000
Creditors	7200	9000
Taxes Payable	6000	6000
Bills Payable	14000	26000
	<u>158600</u>	<u>178400</u>

Additional Information:

- (i) Purchased a new fixed asset costing Rs.25,000 ; Paid Rs. 13000 cash and gave short term bills for the remainder.

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- (ii) Issued additional capital for cash.
  - (iii) Disposed of a fully depreciated asset having on original cost of Rs. 7000 and no salvage value.
  - (iv) Net profit for the year amounted to Rs. 2000 ( after tax)
- Prepare cash flow statement and give your inferences.

50. From the following summarized balance sheet of XYZ Ltd., as on 31<sup>st</sup> Dec.2018 and 2019 and the Income statement for the year 2019, you are required to prepare the Cash Flow Statement. All working should form part of your answer.

BALANCE SHEET					
Liabilities	2018	2019	Assets	2018	2019
Equity Share Capital	1250	1500	Fixed Assets	1910	2180
Reserves	1380	3300	Depreciation	1060	1450
Debentures	1040	1110		850	730
Creditors	1890	150	Long term investment	2500	2500
Interest Payable	100	230	Inventories	1950	900
provision for tax	1000	400	Trade Debtors	1200	1700
			Cash and Bani	25	160
			Short term Investment	135	630
			Interest receivable		100
	6660	6720		6660	6720

INCOME STATEMENT	
Sales	30650
Less: COGS	26000
Gross Profit	4650
Less: Depreciation	450
Interest	400
Advertisement	910
Foreign Exchange Los:	40
	1800
	2850
Add: Interest Income	300
Dividend	200
	500
	3350
Add: Insurance claim for	180
EarthQuake loss	
Less: Income Tax Provision	260
Net Profit	3270

Additional Information:

- (i) Plant having cost of Rs.80 and accumulated depreciation of Rs.60 was sold for Rs.20
- (ii) Foreign Exchange Loss of Rs. 40 represent loss in value of short term investments.
- (iii) Debentures of Rs. 180 were redeemed during the year.
- (iv) Out of the interest expense of Rs. 400 , Rs. 170 were paid during the year.
- (v) Dividend of Rs. 1200 together with dividend tax at 10% was paid during the year.

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Prepare the Cash flow statement for the year ending 2019 and give your inferences.

51. Select any company from screener.in, and analyze the cash flow statement, using variances, ratios and growth rates.
52. Select any company from screener.in, and analyze the cash flow statement, using variances, ratios and forecast for the next three years.

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