13/11/21

Demand forecasting methods

Least squares method:-

Year	Sales	T	S.T	T2
2012	40	1	40	1
2014	45	3	135	9
2016	51	5	255	25
2018	49	7	343	49
2020	56	9	504	81
	241	25	1277	165

$241 = 5a + 25b \times 5 \Rightarrow 1205 = 25a + 125b$

$1277 = 25a + 165b$

$1277 = 25a + 165b$

$-72 = -40b$

$40b = 72$

$b = \frac{72}{40}$

$\boxed{b = 1.8}$

$1277 = 25a + 165(1.8)$

$\Rightarrow 1277 - 297 = 25a$

$25a = 980$

$a = \frac{980}{25}$

$\boxed{a = 39.2}$ //

$\Sigma S = Na + b\Sigma T$

$S_{2022} = 1.8 \times 11 + 59.2$

$\boxed{S_{2022} = 59.8}$ //

Time series analysis:-

$S = T + C + S + E$

26/4/21

4 Types of correlation

1. Simple
2. multiple
3. positive
4. negative

r — coefficient of Correlation

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}}$$

Ex:- $\bar{Y} = \frac{\Sigma Y}{n} = 60$; $\bar{X} = \frac{\Sigma X}{n} = \frac{1080}{6} = 180$

X	Y	$x(X-\bar{X})$	$y(Y-\bar{Y})$
172	60	−8	0
74	56	−6	−4
177	58	−3	−2
175	54	−5	−6
182	56	2	−4
200	76	20	16

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}}$$

xy	x^2	y^2
0	64	0
24	36	+16
6	9	4
30	25	36
−8	4	16
320	400	256
$\Sigma xy = 372$	$\Sigma x^2 = 538$	$\Sigma y^2 = 328$

$$\therefore r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}} = \frac{372}{\sqrt{538 \times 328}} = 0.8855$$ //

→ X on Y.

$$(X - \bar{X}) = r \cdot \frac{\sigma x}{\sigma y}(Y - \bar{Y})$$

Y on X

$$(Y - \bar{Y}) = r \cdot \frac{\sigma y}{\sigma x}(X - \bar{X})$$

Ex:- The sales department of firm is planning to expanse sales by 10 lakhs Rupees. The consultant to the sales department points out that in the past the firm's sales ~~procedures~~ proceeds very high correlation of 0.57. The past data revield that the firms average sales per year has been 4 lakhs with standard deviation

with 30 thousands and its average annual and advertisements with standard deviation with 10 thousand.

1. How much advertising expenditure must the firm ~~x~~ index to achieve to its target?

→ Let annual sales to be = x. then we would like to solve Y on X.

$$(Y-\bar{Y}) = r \cdot \frac{\sigma Y}{\sigma X}(X-\bar{X})$$

$$(Y-1,00,000) = 0.75 \times \frac{10,000}{30,000}(10,00,000 - 4,00,000)$$

$$(Y-100000) = 0.75 \times \frac{1}{3}(6,00,000)$$

$$(Y-100000) = 0.75 \times 2,00,000.$$

27/11/21

Barometric Technique Indicators

National income, GDP, employeement levels, industrial income, agriculture income, standard of living of people, purching power, Influation rate, Government policy.

Simultaneous Eqn method

→ Test marketing:-

→ control experiments:-

→ Judgemental approach:-

Production Analysis

Importance of production function:-

* when inputs are given in physical units, production function estimates the level of the production.
* while taking the help Isoquants, prod fun. Identifies alternative Combination of inputs deling with the same amount of output level.
* prod function Explains how one input factor

can be Substituted for other input factor without changing output.

* pro fun while taking the help of input prizes, Identifies least cost combination of inputs used to produced desired level of output.

* pro fun explain two input & output relationship.

1. Law of variable proportionates.
2. Law of Returns to scale.

Outline :-

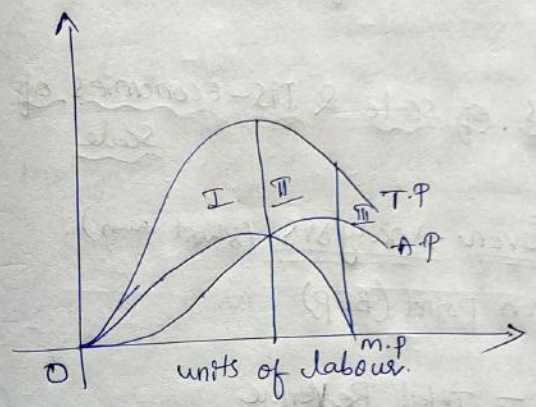
Law of Variable proportionate (or) Law of Diminishing marginal utility (or) production function with one variable input

Example :-

No. of workers	Title product	Average product	marginal product
1	10	10	10
2	22	11	12
3	36	12	14
4	52	13	16
5	66	13.2	14
6	76	12.6	10
7	82	11.7	6
8	85	10.6	3
9	85	9.4	0
10	83	8.3	-2

I. Increasing returns to scale stage.
II. Diminishing/Decreasing returns to scale stage.
III. Negative returns to scale stage.

→ units of labour on x-axis and Total units of output is on Y-axis.



Assumptions :-

→ state of Technology should be same.

→ Try to employ homogeneous units of labour.

→ fix inputs should be indivisible in nature.

Law of Returns to scale (or) production function with all variable inputs :-

3 stages :-

1. Increasing returns to scale stage.
2. Constant return to scale stage.
3. Decreasing return to scale stage.

Economies of scale
&
Dis-Economies of scale.

03/12/21

not in syllabus Economies of scale & Dis-Economies of Scale

Break Even Analysis. (short run)

→ Break even point (BEP)
↓
Total cost = Total Revenue

i) $\underbrace{\text{Total cost}}_{TC} = \underbrace{\text{fixed cost}}_{(FC)} + \underbrace{\text{Variable Cost}}_{VC}$

$TC = FC + VC$.

ii) whatever is produced. Entirely suppose to be sold.

Formula :- (?) Break even units.

$\Rightarrow \dfrac{\text{Fixed cost}}{\text{Selling price per unit} - \text{Variable Cost per unit}}$

(2) Break-even Sales

$\Rightarrow \dfrac{\text{Fixed cost}}{\text{profit volume ratio (P/V ratio)}}$

→ P/V ratio (Contribution to sales ratio)
P/V is also known as ↑

(3) $P/V \text{ ratio} = \dfrac{\text{Contribution}}{\text{Sales}} \times 100$.

(4) marginal costing Equation (MC Eqn)

Sales − variable cost = Fixed cost + profit

$S - VC = FC + \text{profit}$

(5) $\boxed{\text{Break even sales} = \text{Break even units} \times \text{selling price per unit.}}$

(6) magin of safety = Total Sales − Break even sales
(or) $\dfrac{\text{profit}}{\text{P/V ratio}}$

(7) Desired sales = $\dfrac{\text{Fixed cost} + \text{Desired profit}}{\text{P/V ratio}}$

Ex:- 1

From the following information Calculate

i) Calculate BEP in units and in sales value.

ii) profit Earned by firm.

iii) ~~Profit~~ margine of safety.

iv) profit Volume ratio.

Information.

Fixed cost = 72000/-

Variable Cost per unit = Rs. 15/-

Selling price per unit = Rs. 24/-

10,000 units are produced.

A) i)

$$BEP = \frac{\text{Fixed cost}}{\text{selling price per unit} - \text{Variable cost per unit}} = \frac{72000}{24-15}$$

$$= \frac{72000}{9} = 8000 \text{ units}$$

Break even sales = Break even units x selling price per unit

Break even sales = 8000 x 24

= Rs. 1,92,000/-

ii) From MC Eqn,

S - VC = FC + P

S - (FC + V.C) = P.

10,000 x 24 - (10,000 x 15) + 72,000) = P

P = 18,000/-

iii) margine of safety = Total sales - Break even sales

margine of safety = 10,000 x 24 - 1,92,000

=

iv) profit volume ratio.

$$P/V \text{ ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{S - VC}{S} \times 100$$

$$= \frac{24-15}{24} \times 100$$

P/V ratio = 37.5%

→ Break-even sales = $\frac{\text{Fixed cost}}{P/V \text{ ratio}}$

$$= \frac{72000}{\frac{375}{100}}$$

$$= 72000 \times \frac{100}{375} =$$

10/12/21

$$MOS = \frac{profit}{P/V\ ratio}$$

profit = mos × P/V ratio

$= 0.3 \times 0.4$

profit = 0.12 or 12%

$14000 \times \frac{12}{100} = RS.\ 1,680/- \rightarrow$ profit

$$P/V\ ratio = \frac{Contribution}{sales} = 0.4$$

$$Contribution = \frac{FC + Profit}{sales} = 0.4$$

$$= \frac{FC + 1,680}{14,000} = 0.4 = 3,920/-$$

Break even sales,

$$\frac{F.C}{P/V\ ratio} = \frac{3,920}{0.4} = RS.\ 9800/-$$

Ex: fixed factory overheads cost = 60,000/- rupees.
fixed selling " " = 12,000/- rupees.
Variable material cost per unit = 12/- Rupees
Labour cost per unit = 3/- Rupees.
Variable overheads = 1/- Rupee per unit
selling price per unit = 24/- Rupees.

from the above particulate

i) Break even point in terms of sales value and in units.

ii) No. of units that must be sold to earn a profit of 90,000/- Rupees.

A) (i) Total F.C = (60+20)K = 72,000/-.

$$Break\ even\ units = \frac{FC}{SP - VC}$$

$$= \frac{72000}{24-16} = \frac{\overset{9000}{\cancel{72000}}}{\cancel{8}}$$

= 9000 units.

→ 9000 × 24 units

= 2,16,000/-.

(ii) $$D.S = \frac{F.C + D.P}{P/V\ ratio}$$

$$= \frac{72,000 + 90,000}{0.33\overline{3}}$$

$$= \frac{162000}{0.333} = 20252$$

$$= \frac{4,86,048}{24}$$

$$P/V\ ratio = \frac{S - VC}{S} \times 100$$

$$= \frac{24-16}{24} \times 100$$

$$= 0.33\overline{3} = 33.3\%$$

Break event Chart

*1. Significance of Break event ~~point~~ analysis & limitations of B.e.a. Importance of BEA.

1. make or buy.
2. product mix decision.
3. Drop or Add decision

11/12/21

Markets
- Perfect competition
- Imperfect competition.
  - monopoly
  - Duopoly
  - oligopoly
  - monopolistic compt^n.

16/12/21

Accountancy :-

Accountancy is the art of recording, Classifying, Analysing and Summering all monitary transactions, and interpreting the result in the form of financial information.

Imp
* Accounting concepts and conventions.

→ Accounting concepts :- six concepts

1. Business entity concept
2. Going concern concept
3. money measurement concept
4. cost concept → Assests
5. Dual aspect concept.
6. accounting period concept

April-1 to march-31 → Financial year.

→ Conventions :-

1. Convention of Disclosure
2. Convention of Consistancy
3. Convention of materiality
4. Convention of conservatism

Assest = property

Double entry system of book-keeping :-

1. Journal
2. Subsidiary books
3. Ledger
4. Trial balance
5. Final accounts

1. Journal

Journal is a book wherein all the business transactions are recorded on the daily basis in a systematic manner.

A transaction takes place in business they are first recorded in journal so it is called as "Books of prime entry".

2. Subsidiary books

Subsidiary books are the accounting books of original entry in which transactions of similar nature are recorded.

i) purchases book.

A purchases book records all the credit purchase transactions which took place during a day, week or month.

ii) purchases Returns Book.

A purchases returns book records the details of defective and faculty goods that are returned back to the supplier.

defective = imperfect or faulty

iii) Sales Book

Sales book records all the 'credit sales' transactions which took place during a day, week or month. At the end of certain period, the total of sales book is transferred to sales account.

iv) Sales Returns Book.

A sales returns book records the details of goods returned by the ~~cu~~ customer.

v) Bills Receivable Book

vi) Bills Payable Book

vii) Cash book

viii) Bank Book

ix) Journal proper

3. Ledger

Ledger is an accounting book where the journalized transactions are being classified. It considers set of accounts and includes all types of bussiness accountants.

4. Trial Balance

Trail balance can be defined as a statement consisting of balances of different ledger accounts on a specific date. when both the sides of trail balance tally, it means that books of accounts are accurate.

5. Final Accounts

The final accounts of a sole trading firm consist of trading account, profit and loss account and balance sheet which are interrelated to eachother.

17/12/21

Account

Types of Accounts.

1. personal Account
   - → Debit – The Receiver.
   - → credit – the Giver.
2. Real Account
   - → Debit – what comes in
   - → credit – what goes out
3. Nominal Account
   - → Debit – All Expenses & losses
   - → credit – All incomes & gains.

Real account – All assets including Cash, Purchases, Purchase returns, sales, sales returns.

Books of Accounts :

1. Journal
2. Ledger
3. Trial Balance
4. Final Accounts
   - → Trading a/c
   - → Profits loose a/c
   - → Balance sheet

→ Journal :- (primary book / first book).

Date	Particulars	L.F	Debit (RS)	Credit (RS)

Ex:- Journalise the following transactions in the books of XYZ company limited.

1st January 2021 XYZ company limited started business with 8 lakh rupees.

2nd January – Cash paid into Bank 1 lakh

3th " – goods purchased – 90,000/-

6th January – Rent paid – 10,000/-

9th January – machinary purchase – 1.2 lakhs

11th " – Sold goods – ₹1 lakh rupees.

13th " – Salaries paid – ₹25,000/- rupees.

14th Jan, Purchase goods from mr. A – 50,000/-

15th January – Goods return to mr. A ₹5,000/-

17th Jan, Interest received – ₹7,000/-

19th Jan, Cash paid to mr. A in full settlement – ₹44,500/-

20th Jan, sold goods to mr. B – ₹30,000/-

21th Jan, goods returned by mr. B – ₹2,000/-

25th Jan, Cash withdrawn from Bank – ₹20,000/-

27th Jan, Cash received from mr. B in full settlement – ₹27,800/-

30th Jan, Sale of machinary – ₹25,000/-

31th Jan, Issued a check for 10,000/- rupees towards rent.

A)

Date	Particulars	L.F	Debit (Rs)	Credit (RS)
01/01/21	Cash a/c ..... Dr To XYZ Company capital ak (Being the business commenced).	X	8,00,000 xxx	xxx 8,00,000
02/01/21	Bank a/c ..... Dr To cash a/c (Being cash deposited)		100,000	1,00,000
05/01/21	Purchases a/c ... Dr To cash a/c (Being goods purchased)		90,000	90,000

06/01/21	Rent a/c - - - Dr To Cash a/c (Being rent paid)	10,000	10,000
09/01/21	machinery a/c - - - Dr To cash a/c.	1,20,000	1,20,000
11/01/21	Cash a/c - - - - Dr To sales a/c (Being goods sold)	1,00,000	1,00,000
13/01/21	salaries a/c - - - Dr To cash a/c	25,000	25,000
14/01/21	purchases a/c - - - Dr To mr. A's a/c (Being goods purchased on credit).	50,000	50,000
~~15/01/21~~	~~cash a/c - - - Dr~~ ~~To~~ ~~Interest a/c~~ ~~(Being Interest received~~	~~7,000~~ ~~xxx~~	~~xxx~~ ~~7,000~~

15/01/21	mr. A's a/c - - Dr To Purchase returns a/c	5,000	5,000
17/01/21	Cash a/c - - - Dr. To Interest a/c (Being Interest received)	7,000	7,000.
19/01/21	mr. A's a/c - - - Dr To cash a/c discount a/c - - - -	45,000	44,500 500
20/01/21	mr. B's a/c - - - Dr To sales a/c	30,000	30,000.
21/01/21	sales returns a/c - - - Dr To mr. B's a/c	2,000	2,000.
25/01/21	Cash a/c - - - - Dr To Bank a/ce - - - - (Being cash withdraw)	20,000	20,000
27/01/21	Cash a/c - - - - - Dr discount a/c - - - - Dr To mr B's a/c (Being cash received in full settlement)	27,800 200	28,000

30/1/21	Cash a/c - - - - Dr To machinery a/c		25,000	25,000
31/1/21	Rent a/c - - - Dr To Bank a/c (Being Rent paid)		10,000	10,000.

23/12/21

Cash a/c

1. Simple Cash book
2. Double column Cashbook
3. Tripple column Cashbook.

Simple Cash book. Cash a/c

DR | CR

Date	Particulars	F	Amt.	Date	Particulars	F	Amt

Double cash a/c.

DR | CR

Date	Particulars	F	Discount	Amt. Bank	Date	Parti	F	Discount	Amt. Bank

Three column cash book.

DR | CR

Date	Particulars	F	Discount	Bank	Cash	Date	Particulars	F	Discount	Bank	Cash

Ex:

Cash a/c

DR | CR

Date	Particulars	J.F	Discount	Amt. (cash)	Date	Particulars	J.F	Discount	Amt (cash)
01/01/21	To XYZ co. Capital a/c	–	–	8,00,000	2/1/21	By Bank a/c	–	–	1,00,000
11/1/21	To sales a/c	–	–	1,00,000	5/1/21	By purchase a/c	–	–	90,000
12/1/21	To interest	–	–	7,000	6/1/21	By rent a/c	–	–	10,000
25/1/21	To Bank a/c	–	–	20,000	7/1/21	By machinery a/c	–	–	1,20,000
27/1/21	To Mr. B's a/c	–	200	27,800	13/1/21	By Salary a/c	–	–	25,000
30/1/21	To machinery a/c	–	–	25,000	19/1/21	By Mr. A's a/c	–	500	44,500
					31/1/21	By balance a/c	–	–	5,40,300
				₹9,79,800					₹9,79,800
01/2/21	To balance b/d	---		– 5,40,300					

Trial Balance :

Particulars	Debit	Credit

Debit Balances :-

1. All fixed assests
2. All Current assests
3. All Expanses & loss
4. All purchases
5. Sales returnes
6. Opening stack

Debtors
↓
Good debts – 90%
Doubt full debts – 8%
Bad debts – 2%

Credit Balances :-

1. Long term liabilities
2. Current liabilities
3. All incomes & gains
4. All sales
5. purchase returnes
6. All provisions & reserves (Debit)

Accounts showing Debit Balances :-

1. All Expanses accounts :- (Example : Salaries, wages, Rent, General Expenses, Advertisement Expenses, power charges, Trade Expenses etc...)
2. All fixed assests :- Ex :- land, Buildings, Plant and machinery, premises, patents, Good will, Furniture, Fixture, Fittings, vehicles, losses Took etc..
3. All Current Assests :- (Ex :- Cash in hand, cash at Bank, Debtors, Bills Receivables, short term securities, Closing stack etc, short term investments, prepaid expenses.
4. losses account :- (Ex :- Dis Count allowed by the business, Goods destroyed in fire, depreciation etc.
5. purchases account :- (~~Ex~~ Purchases made by the business
6. sales returns account :- goods returned by the customes due to some defectiveness

Accounts showing Credit Balances :-

1. Long Term Liabilities account :- Ex :- capital, long term loans taken by business.
2. Current liabilities account :- Ex :- ~~Creditors~~ Creditors, Bills payable, over draft, short term loans taken by business, outstanding expenses (rent, salries) etc, provision for taxation, proposed devident.
3. All incomes :- Ex :- Sales, interest received, divided received, Rent paid, commission received etc.
4. purchases and book return goods returned to the supplier of the goods due to some defectiveness.

→ Debtors } credit sales.
Bills receivables

30/12/21

Ex:- From the following details prepare trial balance at 31th December

Sundry debtors - 64,000.
opening stack - 44,000.
Cash in hand - ₹70/-
Plant and mischinery - ₹35,000/-
Sundry creditors - 21,300/-
Trade expenses - 2150/-
Sales - 2,69,000/-
Salaries - 4,450/-
Carriage outwards - ₹800/-
rent paid - 1800/-
Bills payable - 15,000/-
purchases - 2,37,740/-
Discount allowed - 22,00/-
Bussiness premises - 69,000/-
Capital - 1,59,000/-
Cash at Bank - 3090/-

Trial Balance preparing for year ending 31th December

Particulars	Debit	Credit
sundry debtors	64000	
opening stack	44000	
cash in hand	70	
plant & machinery	35000	
sundry creditors	—	21300
Trade expenses	2150	
sales	—	2,69,000
salaries	4,450	
carriage outwards	800	
Rent paid	1800	
Bills payable	—	15000
purchases	237740	
Discount allowed	2200	
Bussiness premises	69,000	
Capital	—	159,000
Cash at Bank	3090	
	Total: ₹4,64,300/-	4,64,300/-

Final Accounts / Financial statements :-

1. Trading Account
2. Profit & loss Account
3. Balance Sheet

~~Trading~~

Ex: From the following trial Balance of vikram Foundry works prepare trading Account, Profit & loss account for the year ending march 31th 2080 also prepare Balance sheet as on that Date.

Dr | Cr

Particulars	Debit	Particulars	Credit
electricities	14,000/-	~~Interest received~~	16,000
Land	1,40,000/-		
interest paid	16,000/-		
wages	50,000/-		
opening stack	20,000/-		
Rent paid	24,000/-		
		Interest received	16,000
		Discount received	6,000
purchases	3,00,000		
office Expenses	30,000		
		Sales	8,00,000
		Purchase returns	10,000
		Sunday creditors	60,000
Buildings	4,00,000/-		
salaries	90,000		
Gas and power water	30,000		
		Capital	3,00,000
		Bills Payable	15,000
Sales returns	20,000/-		
Furniture	15,000/-		
Sundry debtors	60,000/-	Sundry creditors	~~60,000/-~~
	₹12,07,000/-		₹12,09,000/-

Adjustments :-

outstanding Salaries - 10,000/-
Closing Stack — 80,000/-
depreciate Buildings at a rate of 10% per Annum.
interest received in Advance - 2000/-
writeoff baddebts - 10,000/-

→ Trading Account prepare for a year ending 31st march

Dr | Cr

Particulars	Amount	Particulars	Amount
To opening stack	20,000	By sales 800000	
To purchases 3,00,000 less Purchase returns 10,000	290000	less sales returns 20000	780000
To wages	50,000	By closing stack	80,000
To power gas & water	30,000		
To balance c/d (Gross profit)	470,000		
	8,60,000		8,60,000/-

→ profit & loss a/c for year ending 31st march, 2018:-

Profit & loss

Dr | Cr

Particulars	Amount	Particulars	Amount
To electricity	14,000	By balance b/d (Gross profit)	4,70,000.
To Interest paid	16,000	By Interest received 16,000	
To Rent paid	24,000		
To office expenses	30,000	(-) Advance receipt 2000 →	14,000
To salaries 90,000 (+) p/s exp 10,000 →	1,00,000	By Discount received	6,000
To depreciation on Buildings ($\frac{10}{100}$ x 400K)	40,000		
To writeoff baddebts	10,000		
To balance c/d (Net profit)	2,56,000		
	4,90,000		4,90,000

→ Balance sheet a/c for year ending 31st march, 2018-

Liabilities	Amount	Assests	Amount
Capital 3,02,000 (+) Net profit 2,56,000	5,58,000	Land	140000
		Buildings 400000 (-) depreciation 40,000 →	3,60,000
Creditors	60,000	Furniture	15,000
Bills payable	15,000	Debtors 60,000 (-) Baddebts 10,000 →	50,000
outstanding salaries	10,000	closing stock	80,000
Advance receipt of Interest	2000		
	6,45,000/-		6,45,000/-

5. Ratio Analysis

Types.

1. Liquidity Ratios → Short-term solvency.
2. profitability Ratios
3. Turnover ratios
4. Capital Structure ratios.

Liquidity ratios :-

① Current Ratio = $\frac{\text{Current Assests}}{\text{Current Liabilities}}$ = 2:1

~~Current Assests~~ :- Cash in hand + Cash at bank + debtors + Bills receivable + Closing stack + Short term investments + prepaid expenses.

Short-term loans + overdraft + Creditors + Bills payable + outstanding expenses + proposed divident + provisions for taxation.

② quick ratio / Acid test ratio / Liquid = $\frac{\text{Quick Assests}}{\text{Current liabilities}}$ = 1:1

Quick Assests = All current Assests — (closing stack and prepaid expenses).

③ Absolute liquid ratio = $\frac{\text{Absolute liquid Assests}}{\text{Current liabilities}}$

= 0.5:1 or 1:2

Absolute liquid Assests = cash in hand, cash at bank, Short term investments.

Profitability ratios :-

1. Gross profit ratio = $\frac{\text{Gross profit}}{\text{Net Sales}} \times 100$.

→ Gross profit = Sales − Cost of goods sold (CGS)

→ GP = Sales − CGS.

→ CGS = opening stack + purchases + All Direct Expenses − Closing stack.

→ Net Sales = Total sales − Sales returns

2. Net profit ratio = $\frac{\text{Net profit}}{\text{Net sales}} \times 100$.

Surplus = profit

3. operating Expanses ratio = $\frac{\text{operating Expanses}}{\text{Net sales}} \times 100$.

operating Expanses = Cost of goods sold + office & Administration charges + selling & distribution Charges.

4. operating profit ratio = 100 − operating expanses ratio

Turnover ratios :- Is called also activities ratio.

→ Stock Turnover ratio / Inventary Turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Average stack}}$ = 10 times

Average stack = $\frac{\text{opening stack + closing stock}}{2}$

If opening stack (or) closing stock not given we can take in the formula denominator as closing stack (or) opening stack.

→ Turnover ratio in No. of days in year is Stack convertion Period.

Stack convertion period = $\frac{\text{No. of days in a year}}{\text{Stack Turnover ratio}}$

→ Debtors Turnover ratio = $\frac{\text{Credit sales}}{\text{Average debtors + Average Bills receivables}}$ = _ times

* Total sales − cash sales = credit sales.

→ debt collection period = $\frac{\text{No. of days in a year}}{\text{creditors turnover ratio}}$

→ Creditors turnover ratio = $\frac{\text{Credit Purchases}}{\text{Average amount of Bills Payables}}$

Avg creditors

→ debt payment period = $\frac{\text{No. of days in a year}}{\text{Creditors turnover ratio}}$

4. Capital structure ratios:- To know lon term solvency position.

Debt-equity Ratio = $\frac{\text{Debt}}{\text{equity}}$ = times

debt/long term liabilities = ~~debtors~~ debenchers + long term loans

Equity/shareholder funds = equity capital + preference capital + All reseves & surplus.

EX:- From the following balance sheet liquidity ratio, Gross profit ratio, Stack turnover ratio, debt equit ratio.

Balanceshet

Liabilities	Amount	Assests	Amount
Equity capital	1,00,000	land & Buildings	1,25,000
Preference capital	75,000	Plant & michenary	75,000
Debenture capital	25,000	Debtors	40,000
Creditors	50,000	Bills receivables	20,000
Bills payable	40,000	Cash in hand	10,000
over draft	10,000	Cash at Bank	25,000
outstanding expanses	30,000	markatable securities	15,000
		Closing stack	20,000
	3.3L		3.3L

Additional information

Sales during the year = 2 lakhs

cost of goods sold = 1.4 lakhs

A) ① Current Ratio = $\frac{\text{Current Assests}}{\text{Current liabilities}}$

= $\frac{\text{Debtors + bills receivables + Cash in hand + Cash at bank + marketable securities + closing stack}}{\text{Creditors + Bills payable + overdraft + outstanding expanses}}$

= $\frac{40,000+20,000+10,000+25,000+15,000+20000}{50000+40,000+10000+30000}$

= 1:1

② Quick Ratio = $\frac{\text{Quick Assests}}{\text{Current liabilities}}$

Current Assests - (closing stack) = Quick Assests

Q.R = $\frac{(130K - 20K)}{130K}$ = 11/3

= 0.846:1

③ Absolute liquid Ratio = $\frac{\text{Absolute liquid Assests}}{\text{Current liabilities}}$

= $\frac{10K+25K+15K}{130K}$ = $\frac{50K}{130K}$ = 0.384:1

④ Gross profit ratio = $\frac{\text{Gross profit}}{\text{Net sales}} \times 100$

$= \frac{(2-1.4)L}{2L} \times 100 = \frac{60K}{200K} \times 100$

$= 30\%$

⑤ Stop turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Avg. stock}}$

$= \frac{1.4L}{20K} = 7$ times

⑥ Stack conversion period = $\frac{\text{No. of days in a year}}{\text{Stack turnover ratio}}$

$= \frac{365}{7} = 52$ days

⑥ debt equity ratio = $\frac{\text{debt}}{\text{equity}}$

debt = debenchers

equity capital + preference capital = equity

$= \frac{25k}{1L+75K} = \frac{25}{175} = \frac{1}{7}$

$= 0.14$ times

Ex:-

Current ratio = 4:1

quick ratio = 3.2:1

working capital = 75,000/-

Calculate current assests, current liabilities, quick assests, closing stack and closing stack to be assuming prepaid expanses to be around 200/-.

A)

working capital = CA − CL

working capital = Current Assests − Current liabilities.

Current ratio = $\frac{CA}{CL} = \frac{4}{1}$

CA − CL = working capital

$4 - 1 = 75,000$

$3 = 75,000$

$4 = ?$

$4 = 1,00,000/-$

$\therefore CA = 1,00,000/-$

→ $\frac{4}{3} \times 75000 = 1,00,000 = CA$

→ $\frac{1}{3} \times 75000 = 25,000 = CL$

→ Quick Ratio = $\frac{\text{Quick Assest}}{\text{Current liabilities}} = \frac{3.2}{1} = \frac{Q.A}{25K}$

Quick Assest = 3.2 × 25K

Quick Ass = 80,000/-

→ Quick Assests = CA − (Closing stack + preparing expanses)

80,000 = 1,00,000 − (closing stack + 2000)

Closing stack = 1~~L~~ 80K − 2000

$\boxed{\text{Closing stack} = 18K/-}$ //

earning = profit

→ Special Ratios :-

1. Return on Investment (

$$= \frac{\text{profit after tax}}{\text{Shareholders funds}} \times 100$$

2. It is dividen~~dilat~~ on ratio

$$= \frac{\text{dividend per equit share}}{\text{market prize for equit share (mpe)}} \times 100$$

3. Interest coverage ratio = times

$$\frac{\text{earnings before intrest and tax}}{\text{intrest Charge}}$$

4. earnings per share = (EPS) → Rupees

$$\frac{\text{Net profit available to Equity Shareholders}}{\text{No. of Equity share}}$$

5. prize earning ratio (P/E) =

$$\frac{\text{market prize per equity share}}{\text{earning per share}}$$

6. preference dividend coverage ratio =

$$\frac{\text{profit after tax}}{\text{priference dividend}}$$

7. proprietary ratio =

$$\frac{\text{proprietary funds}}{\text{Total Assests}}$$

8. Fixed Assests to proprietary funds ratio =

$$\frac{\text{Fixed Assests}}{\text{proprietary funds}}$$

9. Current Assests to proprietary funds ratio =

$$\frac{\text{Current Assests}}{\text{proprietary funds}}$$

Ex :-

Equity share Capital (₹10 Rs per share) = 8,00,000/-

5%, preference share capital = 5,40,000/-.

10%, Debenture Capital = 2,00,000/-

Profit after tax, 60% = 2,70,000/-

equity dividend = 20%

market prize of equity share = 40/-

Calculate dividend on ratio, interest coverage

ratio, preference dividend coverage ratio, Earnings per share, price earnings ratio.

A) Net Income Statement

EBIT/PBIT ⟶ 470000

Interest ⟶ 20,000 $\left(\frac{10}{100} \times 200000\right)$

EBT/PBT ⟶ 450000 $\left(\frac{100}{60} \times 270000\right)$

Tax ⟶ 180000

EAT/PAT ⟶ 2,70,000

preference dividend ⟶ 27,000 $\left(\frac{5}{100} \times 5,40,000\right)$

Net profit available to equity shareholders ⟶ 2,43,000/-

(1) $\frac{2}{40} \times 100 = 5\%$ $\left(\frac{20}{100} \times 10\right)$

(2) $\frac{EBIT/PBIT}{Interest} = \frac{4,70,000}{20,000} = 23.5$ times

(3) $\frac{PAT}{pref\ dividend} = \frac{2,70,000}{27,000} = 10$ times.

(4) $EPS = \frac{243000}{80,000} = Rs.\ 3.03$

(5) $P/E\ ratio = \frac{mps}{EPS} = \frac{40}{3.03} =$ ____ times

Ex:

From the following calculate stock turnover ratio, debtors turn over ratio.

Cash ~~sal~~ Sales = 6,00,000/-

Credit Sales = 4,50,000/-

Sales returns = 80,000/-

opening stack = 42,000/-

Closing stack = 56,000/-

Gross profit rate is 20%.

debtors at beginning of year = 1,00,000/-

Debtors at the end = 75,000/-

A) Stock turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Avg. stock}}$

CGS = Sales − Gross profit

= 9,70,000 − 1,94,000 = 7,76,000

Gross profit = 20%

$= \frac{20}{9,70,000} \times 100 = 1,94,000/-$

Credit Sales = 6,00,000
+ Cash Sales = 4,50,000

10,50,000
− Sales returns 80,000

Net Sales 9,70,000

*) Stock Turnover ratio = $\frac{\text{Cost of goods sold}}{\text{Avg. stock}}$

$= \frac{7,76,000}{\frac{42000+56000}{2}} = 15.83$ times

→ Debtors Turnover ratio = $\frac{\text{Credit sales}}{\text{Average Debtors}}$

$= \frac{4,50,000}{\frac{100000+70000}{2}} = 5.14$ times

EX :-

→ From the following information, Calculate Gross profit, Net profit, operating profit ratio.

Particulars	Amount	Particulars	Amount
To opening stock	40,000	By Net sales	1,65,000
To purchase	70,000	By Closing stock	35,000
To wages	10,000		
To Gross profit (c/d)	30,000		
	1,50,000		1,50,000
To Administrative exp	15,000	By Gross profit (b/d)	30,000
To Selling expenses	10,000	By sundry receipts	15,000
To Net profit (c/d)	20,000		45,000
	45,000		

A) Gross profit ratio = $\frac{GP}{\text{Net Sales}} \times 100$

$= \frac{30,000}{1,15,000} \times 100$

=

Net profit ratio = $\frac{\text{Net profit}}{\text{Net sales}} \times 100$

$= \frac{20,000}{1,15,000} \times 100$

=

operating Expenses ratio = (Gst office & Admn + Selling & distribution) / Net sales × 100

$$= \frac{85,000 + 15,000 + 10,000}{1,15,000} \times 100 = 95.65\%$$

operating profit ratio = 100 − operating Expanses ratio

$= 100 - 95.65$

$= 4.35\%$ //