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Formula's

① Calculation of simple Interest = $P \times R \times T$

P - principal
R - Rate
T - time

② Compound Interest =

Annually (A) = $P(1+r)^{nt}$

P - principal
r - rate of Interest
n - no of years
A - Amount of money accumulated after n year with Interest
t - no. of year invested.

Half yearly (A) = $P(1+\frac{r}{2})^{2}$

Quarterly (A) = $P(1+\frac{r}{4})^{4}$

monthly (A) = $P(1+\frac{r}{12})^{12}$

③ Equated monthly Instalments [Emi] = $(P \times r)\frac{(1+r)^n}{(1+r)^n - 1}$

P - principal
r - rate of Interest in monthly basis
it Should be = Rate of Interest/12/100
If Roi = 10%, then $\frac{10}{12}/100 = 0.00833$
n - no of Instalment

④ Ordinary annuity

(payment paid at end of each period) $FV = C \times \left[\frac{(1+i)^n - 1}{i}\right]$

FV = future value
PV = present value

$PV = C \times \left[\frac{(1+r)^n - 1}{r(1+r)^n}\right]$

C - cash flow per year
i - Interest rate
n - no. of payment

Annuity Due

(payment paid at the beging of the years) $FV = C \times \left[\frac{(1+i)^n - 1}{i}\right] \times (1+i)$

$PV = C \times \left[\frac{(1+r)^n - 1}{r(1+r)^n}\right] \times (1+r)$

⑤ present value $PV = \frac{CF}{(1+r)^n}$

CF - cash flow
r - Interest
n - numbers of periods

⑥ **Sinking fund**

future value of annuity $F = A\left[\frac{(1+i)^n - 1}{i}\right]$

F - future value of annuity A
n - no of years
i - rate of interest

present value of annuity $R = \frac{Ar}{(1-(1+r)^{-n}}$

⑦ **Bond value** or **market value** = par value X coupon rate [PVIFA, R'%; i] + Principal Amt [PVIF, R'%; i]

R - rate of int
i - year

⑧ **Duration of Bond** - $\frac{\in PVft \times t}{\in PVb}$

⑨ **modified Duration of Bond** = $\frac{\text{Duration}}{1+\text{Yeild}}$

Percentage change in price = − modified duration X Change in rate

⑩ **current yield on Bond** - $\frac{\text{Coupon Interest}}{\text{Current market price}}$

⑪ **Yield to maturity**

a) calculate current yield

b) Coupon rate (PVIFA kd%, years) + principal Amt (PVIF kd, years)

kd is the yeild to maturity by assuming

⑫ **Instrisic value of Bond** - $V_0 = \sum_{t=1}^{n} \frac{I}{(1+kd)^t} + \frac{F}{(1+kd)^n}$

Vo - instrisic value of Bond
I - Annual interest payable on the Bond
F - Redeemable value of bond
n - maturity period of the bond
kd - cost of capital

⑬ **Net present value (NPV)** = $\sum \frac{C}{(1+r)^n} - i$

C - cash flow
n - no of years
r - discount rate
i - initial investment

(14) Amortization formula $R = \frac{Ar}{(1-(1+r)^{-n})}$

R - periodic payment of an annuity whose Present value is A
n - Period
r - rate of interest

(15) Internal Rate of Return $IRR = R_1 + \frac{NPV_1}{(NPV_1 - NPV_2)} \times (R_2 - R_1)$

OR

$IRR = \frac{Cn}{(1+r)^n} - I$

R1 - Discount rate which is low
R2 - Discount rate which is ~~three~~ higher
NPV1 - Npv at discount which is low
NPV2 - ——————"—— higher

C - Net cash flow per year
n - no of years
r - discount rate
I - initial Investment

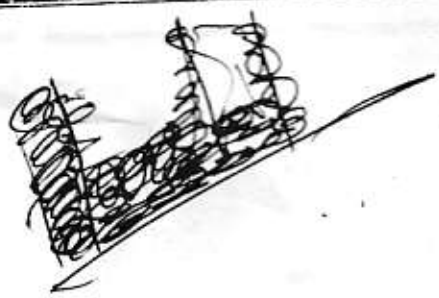
(16) Depreciation

Straight line method Annual depreciation = $\frac{\text{cost - Residual value}}{\text{Estimated useful life}} = P-S/N$

N = Year
P price of depreciation asset
S - Salvage value

Sum of years digit method (10 year) = 10+9+8+7+6+5+4+3+2+1
= 55

Patrika



RATIO ANALYSIS

(1) Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Sales}} \times 100$

(2) Net Profit Ratio $= \frac{\text{Net Profit(PAT)}}{\text{Sales}} \times 100$

(3) Current Ratio $= \frac{\text{Current Assets}}{\text{Current liability}}$ Opexp = GP - PBT

(4) Liquid Ratio $= \frac{\text{Current Assets} - \text{Stock}}{\text{Current liability} - \text{BOD}}$

(5) Operating Ratio

$$= \frac{\text{Cos} + \text{Operating Expense(including debenture int.)}}{\text{Sales}} \times 100$$

(6) Stock turnover Ratio $= \frac{\text{Cos}}{\text{Avg. Stock}}$

cost of sales = Sales - Gross Profit

OR

cost of sales = Opening Stock + Purchase – Closing Stock

(7) Debtors Ratio $= \frac{\text{Debtors} + \text{B/R}}{\text{Credit Sales}} \times 365$

(8) Creditors Ratio $= \frac{\text{Creditors} + \text{B/P}}{\text{Credit Purchase}} \times 365$

(9) Gearing Ratio $= \frac{\text{Preference Share Capital} + \text{Debenture}}{\text{Equity Share Capital}} \times 100$

(10) Return on Capital Employed

$$= \frac{\text{Net Profit (PBIT)}}{\text{Share Capital} + \text{Reserves} + \text{loan} + \text{Debenture} - \text{Ficticious Asset}} \times 100$$

(11) Return on Share Holders Fund

$$= \frac{\text{Net Profit (PAT)}}{\text{Share Capital} + \text{Reserves} - \text{Ficticious Asset}} \times 100$$

(12) Return on Equity Fund

$$= \frac{\text{Net Profit (PAT)} - \text{Preference Share Dividend}}{\text{Equity Share Capital} + \text{Reserves} - \text{Ficticious Asset}} \times 100$$

(13) Return on Equity Capital

$$= \frac{\text{Net Profit (PAT) - Preference Share Dividend}}{\text{Equity Share Capital}} \times 100$$

(14) Earning Per Share

$$= \frac{\text{Net Profit (PAT) - Preference Share Dividend}}{\text{Number of Equity Share}}$$

(15) Proprietary Ratio

$$= \frac{\text{Share Capital} + \text{Reserves} - \text{Ficticious Asset}}{\text{Total Assets} - \text{Ficticious Asset}} \times 100$$

(16) Debt Equity Ratio

$$= \frac{\text{Loan} + \text{Debenture}}{\text{Share Capital} + \text{Reserves} - \text{Ficticious Asset}} \times 100$$

(17) Long Term Fund to Asset Ratio

$$= \frac{\text{Share Capital} + \text{Reserves} + \text{Loan} + \text{Debenture} - \text{Ficticious Asset}}{\text{Total Assets} - \text{Ficticious Asset}} \times 100$$

(18) Interest Coverage Ratio $= = \frac{\text{Net Profit(PBIT)}}{\text{Interest}}$

(19) Debentures turnover ratio $= \frac{365}{\text{Debtors}}$

(20) Long term fund to Fix Assets

$$\frac{\text{Share capital} + \text{Reserve} + (\text{Loan} + \text{Debenture}) \text{ long term Liability}}{\text{Fix Assets}} \times 100$$

Balance Sheet :	It is same as B/S in Business. Capital here referred to as Capital Fund or General Fund

FINANCIAL RATIOS AND THEIR INTERPRETATION

Sl.No	CATEGORY	TYPES OF RATIO	INTERPRETATION
1	Liquidity ratios	**Net Working Capital =** Current assets-current liabilities other than bank borrowings	It measures the liquidity of a firm.
		Current ratio = Current Assets / Current Liabilities	It measures the short term liquidity of a firm. A firm with a higher ratio has better liquidity. A ratio of 1.33:1 is considered safe.
		Acid test or Quick ratio = Quick assets / Current Liabilities	It measures the liquidity position of a firm A ratio of 1:1 is considered safe.
2	Turnover ratios	**Inventory Turnover ratio =** Costs of good sold / Average inventory	This ratio indicates how fast inventory is sold. A firm with a higher ratio has better liquidity.
		Debtor Turnover ratio = Net credit sales / Average debtors	This ratio measures how fast debts are collected. A high ratio indicates shorter time lag between credit sales and cash collection.
		Creditor's Turnover ratio = Net credit purchases / Average Creditors	A high ratio shows that accounts are to be settled rapidly.
3	Capital Structure Ratios	Debt-Equity ratio = Long term debt / shareholders Equity	This ratio indicates the relative proportions of debt and equity in financing the assets of a firm. A ratio of 1:1 is considered safe.

		Debt to Total capital ratio = Long term debt Permanent Capital Or Total debt Permanent capital + Current liabilities Or Total Shareholder' s Equity Total Assets	It indicates what proportion of the permanent capital of a firm consists of long-term debt. A ratio 1:2 is considered safe.
4	Coverage ratios	Interest Coverage = Earning before Interest & Tax Interest	A ratio used to determine how easily a company can pay on outstanding debt. A ratio of more than 1.5 is Satisfactory.
		Dividend Coverage = Earning after tax Preference Dividend	It measures the ability of firm to pay dividend on preference shares. A high ratio is better for creditors.
		Total Coverage ratio = Earning before interests and tax Total & fixed charges	It shows the overall ability of the firm to fulfill the liabilities. A high ratio indicates better ability.
5	Profitability ratios	Gross Profit margin = Gross profit * 100 Sales	It measures the profit in relation to sales. A firm should neither have a high ratio nor a low ratio.
		Net Profit margin = Net Profit after tax less interest Sales Or Net Profit after Tax and Interest Sales Or Net profit after Tax and Interest Sales	It measures the net profit of a firm with respect to sale. A firm should neither have a high ratio nor a low ratio.
6	Expenses	Operating ratio =	Operating ratio shows the

	ratios	Cost of Goods sold + other expenses / Sales	operational efficiency of the business. Lower operating ratio shows higher operating profit and vice versa.
		Cost of Goods sold ratio = Cost of Goods sold / Sales	It measures the cost of goods sold per sale.
		Specific Expenses ratio = Specific Expenses / Sales	It measures the specific expenses per sale.
7	Return on Investments	Return on Assets (ROA) = Net Profit after Taxes * 100 / Total Assets Or (Net Profit after Taxes + Interest) * 100 / Total Assets Or (Net profit after Taxes + Interest) * 100 / Tangible Assets Or (Net Profit after Taxes + Interest) * 100 / Total Assets Or (Net Profit after Taxes + Interest) * 100 / Fixed Assets	It measures the profitability of the total funds per investment of a firm.
		Return on Capital Employed (ROCE) = (Net Profit after Taxes) * 100 / total capital employed Or (Net Profit after Taxes + Interest) * 100 / Total Capital Employed	It measures profitability of the firm with respect to the total capital employed. The higher the ratio, the more efficient use of capital employed.

		Or (Net Profit after Taxes + Interest) * 100 Total Capital Employed – Intangible assets	
8	Shareholder's ratios	Earnings per Share (EPS) = Net Profit of Equity holders Number of Ordinary Shares	It measures the profit available to the equity holders on a per share basis.
		Dividend Payout ratio (D/P) = Total Dividend To Equity Total net profit of equity holders Or Dividend per Ordinary Share Earnings per Share	It shows what percentage share of the net profit after taxes and preference dividend is paid to the equity holders. A high D/P ratio is preferred from investor's point of view.
9	Activity Ratios	Inventory turnover = Sales Closing Inventory	It measures how quickly inventory is sold. A firm should neither have a high ratio nor a low ratio.
		Debtors turnover = Cost of Goods manufactured Average Work in Process Inventory	It shows how quickly current assets i.e receivables or debtors are converted to cash. A firm should neither have a high ratio nor a low ratio.
10	Assets Turnover Ratios	Fixed Assets turnover = Cost of Goods Sold Fixed Assets	It measures the efficiency of a firm in managing and utilizing its assets. Higher the ratio, more efficient is the firm in utilizing its assets.

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Problems Simple Interest

① X borrowed a sum of Rs 10,000 from Y at 12% p.a. interest rate for 2 years. What is the amount of total interest payable.

→ Simple interest = PXRXT
= 10,000X 12% X 2
= 2400

② B borrowed Rs 20000 from A at 10% p.a. Interest rate for 3 years. What is total amount repayable by B to A

Simple interest = PX RXT
= 20,000X 10% X 3
= 6000 interest

then borrowed amount is 20,000 + 6000 int
= 26000 repayed by B to A.

③ X deposited Rs 11200 with a non-Bank finance company at 14% p.a. compounded interest rate for 2 years. What is the amount of interest for 1st, 2nd & ~~3rd~~. int amt in the 2 year

→ for first year 11200x14% = 1568.

Second year 11200+1568= 12768

~~third year~~ ~~12768~~ int amt for 2nd year 12768X14% = 1788

④ An amount of Rs 20,000 gets accumulated to Rs 32000 at the end of 3rd year at Simple Interest. Calculate the rate of Interest.

→ we can assume simple int rate 10%, 15%, 20% & 25%
If we can take 20%. then simple Int = PXRXT
= 20000X 20% X3
= 12000.

then 20,000 + 12000 int
= 32000.

⑤ X had deposited some amount with the bank at 7% for 3 years, which becomes Rs 48000. What amt was deposited.

→ assume amt 37000, 38000, 39000 & 40000
If we take 40,000 X 7% X 3years
= 4800
40,000 + 4800 = 48000
So amt for deposit is 40,000.

Problems Compound Interest

⑥ Mr. K had deposited Rs. 20000 with his bank at 12% interest for 2 years. What will be amount, he is likely to receive, if Compounding ~~years~~ is annually, Half yearly

→ annually $P = A\left(1+\frac{r}{n}\right)^{nt}$

$= 20,000\left(1+\frac{12}{100}\right)^{2}$

$= 20,000(1+0.12)2$

$= 20000 \times 1.2544$

$= 25088$

Half yearly $P = A\left(1+\frac{r}{n}\right)^{nt}$

$= 20,000\left(1+\frac{0.12}{2}\right)^{2\times2}$

$= 20,000 \times 1.2624$

$= 25250$

⑦ Mr K had deposited Rs-40,000 with his bank at 12% interest for 2 years. What will be amount, he is likely to receive, if compounding is quarterly & monthly

→ quarterly $P = A\left(1+\frac{r}{n}\right)^{nt}$

$= 40,000\left[1+\frac{0.12}{4}\right]^{4\times2}$

$= 40,000[1.03]^{8}$

$= 40,000 \times 1.2667$

$= 50670$

monthly $P = A\left(1+\frac{r}{n}\right)^{nt}$

$= 40,000\left[1+\frac{0.12}{12}\right]^{12\times2}$

$= 40,000[1.01]^{24}$

$= 40,000 \times 1.2697$

$= 50789$

Other problems on Simple & Compound Interest

⑧ What annual rate of simple interest was paid if Rs 10,000 earned Rs 1100 as interest in 2 years & 9 months?

→ Simple int (SI) $= \frac{P \times R \times T}{100}$

$$R = \frac{SI \times 100}{P \times T}$$

$$= \frac{1100 \times 100 \times 12}{(24+9) \times 10,000} = \frac{1320000}{330000} = 4\%$$

annual rate 4%.

⑨ A some of money at simple interest amounts to Rs 2800 in 2 years and to Rs 3250 in 5 years. find the sum and the rate of interest

→ we assume amt for first year 2500 for 6%.

then $2500 \times 6\% = 150$

Second year $2500 \times 6\% \times 2 = 300$

$2500 + 300 = 2800$

fifth year $2500 \times 6\% \times 5 = 750$

$2500 + 750 = 3250.$

⑩ Z needs Rs 15 lacs for the marriage of his daughter at the end of 5th year. Considering that the interest rate is 10% at present, what amount he will have to deposit in the bank FDR with yearly compounding? (Hint- Discounting factor 1.61051)

→ $\frac{1500000}{1.61051}$

$= 931382$

⑪ A certain amount was invested on Jan 1, 2015 such that it is generated a periodic payment of 10,000 at the begining of each month of the calender year 2015. The interest rate on the investment was 13.2%. calculate the original investment and the interest earned.

→ Payment - 10,000 $n = 12$ Interest rate - $i = 13.2\%/12 = 1.1\%$

Original investment = pv of annuity due on Jan 1 2015

$= 10,000 (1 - (1 + 1.1\%)^{(-12)} / 1.1\% \times (1 + 1.1\%)$

$= 10,000 \times (1 - 1.011^{-12}) / 0.011 \times 1.011$

$= 113073.20$

Interest earned $= 10,000 \times 12 - 113073.20$

$= 120,000 - 113073.20$

$= 6926.80$

(12) What is the present worth of Rs 132 due in 2 years at 5%. Simple Interest per annum

⇒ present worth be Rs. x

then SI = Rs (132 - x)

$= (x \times 5 \times 2/100) = 132 - x$

$= 10x = 13200 - 100x$

$= 110x = 13200$

$x = 120.$

(13) If a sum of money doubles itself in 8 years at simple interests, the rate percent per annum is

⇒ Sum = α then Simple Int = α

Rate = $(100 \times \alpha)/(\alpha \times 8) = 12.5\%$.

(14) find the Simple Interest on the Rs 2000 at 25/4 % per annum for the period from 4th feb 2013 to 18th April 2013

⇒ Calculate no of days.

Time = (24+31+18) days

= 73/365 years

= 1/5 years

P = 2000

R = 25/4 %.

SI = $2000 \times 25/4/5/100$

= 25

(15) What will be the difference bet Simple & compound interest @ 10% per annum on the sum of Rs 10,000 after 4 years?

⇒ SI = $1000 \times 10/100 \times 4 = 400$

CI = $(1000(1+10/100)^4 - 1000) = 464.10$

diff = 464.10 - 400 = 64.10

(16) Equated monthly Instalments (EMI)

Principal Amt - 100,000

Rate of Int - 10% annually then $10/12/100 = 0.00833$

no of tenure - 12 month

EMI - $(P \times r) \dfrac{(1+r)^n}{(1+r)^n - 1}$

$= (100,000 \times 0.00833) \times \dfrac{(1+0.00833)}{(1+0.00833)^{12} - 1}$

$= 8792$

① Z decides to invest Rs 30,000 every year at 10%, interest rate for next 4 years. What amount he will get at the end of 4 years.

⇒ Future Value ordinary annuity

$$FV = C \times \frac{(1+i)^n - 1}{i}$$

$$= 30,000 \frac{(1+\frac{10}{100})^4 - 1}{10/100}$$

$$= 139230.$$

② Z wants to invest Rs 30,000 per annum at 10% for 4 years. He is invested to know the present value of the amount he would get at the end of 4th year

⇒ ordinery present annuity $= C \times \frac{(1+r)^n - 1}{r(1+r)^n}$

$$= 39,000 \times \frac{(1+10/100)^4 - 1}{10/100(1+10/100)^4}$$

$$= 30000 \times \frac{0.4641}{0.1464}$$

$$= 95096.$$

③ If a 7% coupon bond is trading for Rs - 975 it has a current yield of ---%

⇒ current yield = $\frac{\text{coupon rate}}{\text{current market price}}$

assume face value 1000 is not given

975 = 7%

1000 = ? $\quad \frac{1000 \times 7}{975} = 7.18\%$

④ Coupon bond pays annual interest, has a par value of Rs-1000 matures in 4 years, has a coupon rate of 10%, and has yeild to maturity of 12%. The current yield on this bond is ---.

⇒ current yield cy = $\frac{\text{coupon int}}{\text{market value (kd)}}$

market value (kd) = parvalue × coupon rate (pvifA kd%, i) + principal Amt (pvif kd, i)

= 1000 × 10% (pvifA 12%, 4 years) + 1000 (pvif 12%, 4 years)

= 100 (3.037) + 1000 (0.636)

= 303.7 + 636

= 939.70

939.70 = 10%, then 1000 = ?

$$\frac{1000 \times 10}{937.70} = 10.65\%$$

Problems on annuity, value of Bond, current Yield & YTM

(1) z decides to invest Rs 30,000 every year at 10% interest rate for next 4 years. What amount he will get at the end of 4 years.

⇒ Future value ordinary annuity

$$FV = C \times \frac{(1+i)^n - 1}{i}$$

$$= \frac{30,000\left(1+\frac{10}{100}\right)^4 - 1}{10/100}$$

$$= 139230.$$

(2) z wants to invest Rs 30,000 per annum at 10% for 4 years. He is invested to know the present value of the amount he would get at the end of 4th year

⇒ ordinery present annuity $= C \times \frac{(1+r)^n - 1}{r(1+r)^n}$

$$= \frac{39,000 \times (1+10/100)^4 - 1}{10/100(1+10/100)^4}$$

$$= 30000 \times \frac{0.4641}{0.1464}$$

$$= 95096.$$

(3) If a 7% coupon bond is trading for Rs - 975 it has a current yield of ---- %,

⇒ current yield = $\frac{\text{coupon rate}}{\text{current market price}}$

assume face value 1000 if not given

975 = 7%

1000 = ? $\quad \frac{1000 \times 7}{975} = 7.18\%$

(4) Coupon bond pays annual interest, has a par value of Rs-1000 matures in 4 years, has a coupon rate of 10%, and has yeild to maturity of 12%. The current yield on this bond is ----.

⇒ current yield cy = $\frac{\text{coupon int}}{\text{market value (Kd)}}$

market value (Kd) = parvalue × coupon rate (pvifA kd%, i) + principal Amt (pvif kd, i)

= 1000 × 10% (pvifA 12%, 4 years) + 1000 (pvif 12%, 4 years)

= 100 (3.037) + 1000 (0.636)

= 303.7 + 636

= 939.70

939.70 = 10%, then 1000 = ?

$$\frac{1000 \times 10}{937.70} = 10.65\%$$

⑤ A coupon bond that pays interest annually has a par value of Rs-1000 matures in 5 years and has a yield to maturity of 10%. The instrinsic value (value of bond) today will be ---- if the coupon rate is 7%.

⇒ par value × coupon rate [PVIFA kd%, 1] + principal amt [PVIF kd%, 1]

= 1000 × 7% [PVIFA 10%, 5 years] + 1000 [PVIF 10%, 5 years]

= 70 [3.791] + 1000 [0.621]

= 265.4 + 621

= 886.28

⑥ A coupon bond that pays interest semi-annually (Half yearly) has a par value of Rs 1000 matures in 5 years, and has a yeild to maturity of 10%. The intrinsic value of bond today will be ---- if the coupon rate is 8%.

⇒ $1000 \times \frac{8}{2} \times$ 40

if quarterly = $1000 \frac{8}{4}$ 5×4

= par value × coupon rate [PVIFA $\frac{R}{2}$ 5×2] + princ amt [PVIF $\frac{R}{2}$, 5×2]

= 40 (7.722) + 1000 (0.614)

= 308.88 + 614

= 922.88

⑦ A par value of a bond is Rs 25000 its coupon rate 8% and maturity period 10 years and interest is payable semi-annually. The required rate of return on the bond is 10%. What is the value of the bond.

⇒ 25000 × 8%/2 = 1000

= 1000 [PVIFA $\frac{10}{2}$ %, 10 years] + 25000 [PVIF 10%, 10 years]

= 1000 [7.722] 2 + 25000 (0.614

= 7722 + 15350

= 23072

⑧ A bond has the face value Rs 10000 and coupon rate of 10%. It is quated at Rs 9200 in the secondary market. What is the current yield of the bond

= $\frac{10,000 \times 10}{9200}$ = 10.87%

⑨ B like to put money in an account today to make sure your child has enough money in 10 years to buy a car. If you would like to give your child 10,00,000 in 10 years. and you know you can get 5% interest per year from saving account during that time, how much should you put in the account now?

⇒ present value PV = $\frac{CF}{(1+r)^n}$ = $\frac{10,00,000}{\left(1+\frac{5}{100}\right)^{10}}$ = 613913

(10) calculate the present value on Jan 1, 2015 of an annuity of 5000 paid at the end of each month of the calender year 2015. the annual interest rate is 12%.

⇒ periodic payment R = 5000
Number of periods - n = 12
Rate of int i = 12%/12 = 1%.

Present Value (PV) = $5000 \times (1-(1+1\%)^{(-12)})/1\%$
$= 5000 \times (1-1.01^{-12})/1\%$
$= 5000 \times 0.11255/1\%$
$= 5000 \times 11.255$
$= 56275.40$

(11) B was invested certain amt on Jan-1 2015 such that it generated a periodic payment of 10,000 at the beginning of each month of the calender year 2015. The interest rate on the investment was 13.2%. calculate the original investment and the interest earned.

⇒ R = 10,000
n = 12
i = 13.2%/12 = 1.1%

$PV = 10,000 \times (1-(1+1.1\%)^{(-12)}/1.1\% \times (1+1.1\%)$
$= 10,000 \times (1-1.011^{-12})/0.011 \times 1.011$
$= 10,000 \times 0.123027/0.011 \times 1.011$
$= 10,000 \times 11.184289 \times 1.011$
$= 113073.20$

Interest earned $10,000 \times 12 - 113073.20$
$= 120,000 - 113073.20$
$= 6926.80$

(12) A bond, whose par value is Rs1000 bears a coupon rate of 12% and has a maturity period of 3 years. The required rate of return on the bond is 10%. What is the value of this bond?

⇒ annual int payable = $1000 \times 12\% = 120$
principal repayment at the end of 3years - Rs-1000

Value of bond = 120 (PVIFA 10%, 3years) + 1000 (PVIF 10%, 3yrs)
$= 120(2.487) + 1000(0.751)$
$= 298.44 + 751$
$= 1049.44$

---

* How to calculate PVIF on calculator *
assume int rate is 10%. Year 5 years
add $\frac{1}{1.10}$ and click on = button first time
again = button second time
again = button third time
again = button fourth time
again = button fifth time bez, 5 year
ans will shown as PVIF
PVIF = 0.620

* How to calculate PVIFA *
after showing ans 0.620
click on GT button on calculator
ans shows as 3.790
PVIFA = 3.790

Yield to maturity (YTM)

(13) Consider a Rs 1000 par value bond, whose current market price is 850/-. The bond carries a coupon rate of 8% and has the maturity period of nine years. What would be the rate of return that an investor earns if he purchases the bond and holds until maturity.

➡ Yield to maturity (kd)

$850 = 80(PVIFA\ kd\%, 9\ yr) + 1000(PVIF\ kd, 9\ yr)$

Calculate kd with several diff value

$850 = 80(PVIFA\ 12\%, 9) + 1000(PVIF\ 12\%, 9)$

$= 80 \times 5.328 + 1000 \times (0.361)$

$= 426.24 + 361$

$= 787.24$

above value is less than 850, try with value less than 12%

kd = 10%.

$= 80(PVIFA\ 10\%, 9\ yr) + 1000(PVIF\ 10\%, 9)$

$= 80 \times 5.759 + 1000(0.424)$

$= 884.72$

from above two ans we have clear that kd lies both 10-12%. Now we have to use linear interpolation in the range of 10% & 12%. Using it we find that kd is equal to the following

$= \frac{(884.72 - 850)}{(884.72 - 787.24)}$

$= \frac{34.72}{97.48} = 10\% + .71 = 10.71\%$

Yield to maturity is 10.71%.

(14) Duration of Bond -

The face value of bond is Rs 10,000, its coupon rate 10% and time to maturity is 4 years. Calculate the duration of the bond and if the YTM is 10%. Calculate modified duration.

➡ Duration of Bond. $= \frac{\Sigma PVBt}{\Sigma PVB}$

T	CF	PVF 10%	CF X PVF	Cf. x pvft
1	1000	0.909	909	909
2	1000	0.826	826	1652
3	1000	0.751	751	2253
4	1000	0.6830	7513	30052
			9999	34866

Duration of bond - $\frac{\Sigma PVBt}{\Sigma PVB} = \frac{34866}{9999} = 3.49$

YTM = 10%.

modified duration of bond $= \frac{\text{Duration of bond}}{1 + \text{yield}} = \frac{3.49}{1 + 0.10}$

$= \frac{3.49}{1.10}$

$= 3.17$

problems on Depreciation

(1) on Jan 01, 2000 m/s Shiv mohan Enterprise purchased a plant costing Rs 41000 and spent Rs-4000 on its erection. The estimated effective life of the plant is 10 years and scrap value of Rs-5000. Advise the depriciated value at the end of 3rd year under straight line method. (SLM)

⇒ 41000 + 4000 = 45000

45000 - 5000 = 40,000

$\frac{40,000}{10 \text{ years}} = 4000$

= 4000 × 3rd year

= 12000

= 45000 - 12000 = 33000

(2) A firm had purchased machinery worth Rs-50000 on April 10, 2002 It is useful economic life is expected as 5 years at the end of which it will have a scrap value of Rs-14000. What will be amount of depreciation

⇒ 50000 - 14000 = 36000

$\frac{36000}{5} = 7200$

(3) A firm had purchased a truck for a sum of Rs-2 lacs on Jan-01, 2001 and it charges depreciation at 20% per annum as per written down value method. The truck was sold on July 01, 2002 for Rs-1-60 lacs Advice the amount of profit on sale of the truck

⇒ $200000 \times \frac{20}{100} = 160,000$

$160,000 \times \frac{20}{100} = 32000$

$\frac{32000}{2} = 16,000$

(4) A firm had expected the useful life of 5 years for a machinery of Rs 2 lacs with scrap value of Rs-20000. The machinery is sold at the end of 3rd year for 90000. What is the profit or loss to the firm on the sale if is charged on SLM basis

⇒ 200000 - 20000 = 180000

= $\frac{180,000}{5} = 36,000$

= 36,000 × 3 = 108000 - 20000 = 88000

= 90000 - 88000

= 2000 loss.

⑤ A machinery costs Rs-2lacs. Its economic life is given as 5 years for a firm. Its salvage value is Rs-40,000. What is the amount of annual depreciation.

⇒ $200{,}000 - 40000 = 160{,}000$

$\frac{160{,}000}{5} = 32000$

⑥ A machinery costs Rs 2lacs. Its economic life is given as 5 years for a firm. Its salvage value is Rs-40,000. What is the written down value after 3 years?

⇒ $200{,}000 - 40{,}000 = 160{,}000$

$\frac{160{,}000}{5} = 32000$

$160000 - 32000$

$= \frac{128000}{5} = 25600$

$= 25600 - 128000$

$= 102400.$

Foreign Exchange Arithmetic

① In London market, the US $ and Euro rate is 1 US $ = 0.70 Euro. In mumbai, the US $ and rupee (INR) rate is 1 US $ = Rs 46.20. Calculate the Euro/rupee rate

⇒ $\frac{1}{0.70} = 1.4285$

$\frac{1}{46.20} = 0.02164$

$\frac{1.4285}{0.02164} =$ Rs 66/-

Ratio ~~Any~~ Analysis

① A borrowing firm submits to the commercial bank, the balance sheet with following particulars

Capital & Reserve	– 24 lacs	Term loan	– 16 lacs
Trade Creditors	– 12 lacs	Expenses payable	– 8 lacs
Bank cash credit	– 20 lacs	fixed assets	– 24 lacs
Security for Electricity	– 4 lacs	preliminary Exp	– 2 lacs
Stocks	– 30 lacs	Bills book debts	– 14 lacs
Cash & Bank Balance	– 6 lacs	Net profit	– 6 lacs
Sales	– 120 lacs		

Work out following ratios — current Ration
quick/ acid test ratio / liquid ratio
debt equity ratio
Debtes Velocity ratio
Stock turnover ratio

current ratio = $\frac{\text{current assets}}{\text{Current liability}} = \frac{\text{Stocks + Bank cash credit}}{\text{trade creditor + Book debt + sec for Electricity}}$

$= \frac{30+20}{12+14+4} = \frac{50}{40} = 1.25:1$

quick/ acid test ratio = $\frac{\text{Liquid assets}}{\text{current liability}}$

any items/ particulars which may converted quickly into cash is called liquid assets

[Liquid assets Not included Stocks & Prep. Expenses]

$= \frac{\text{Bank cash credit}}{\text{Trade credits + Book debt + sec for Electricity}}$

$= \frac{20}{12+14+4} = \frac{20}{40} = 0.50:1$

Stock turnover ratio = $\frac{\text{cost of Goods sold during years (COGS)}}{\text{average Inventory (FA)}}$

If cost of Good sold (COGS) not available the take Sales

$= \frac{\text{Sales}}{\text{F.A + cash and bank balance}}$

$= \frac{120}{24+6} = \frac{120}{30} = 4 \text{ times}.$

Debt equity ratio = $\frac{\text{External equity}}{\text{Internal equity}}$ or $\frac{\text{total long term debt}}{\text{Share holders fund}}$

External equity include - total outside liability
Internal equity include - Share holder fund (Outsider fund), Networth, tangible Networth

Ans ⇒ 0.73:1

Debtes Velocity Ration / Debtes turnover Ratio = $\frac{\text{Credit sales or total sales}}{\text{Average Account receivable}}$

account Receivable include - Trade debtor & bills receivable

Ans ⇒ 1.4 months

② A partnership firm wants to shift their dealing from another bank to your branch & provides the following details about their balance sheet

Partners Capital	16	General Reserves	4
Loan from NBFC	12	Loan from friends	6
Bank Limit	28	Bills payable	5
trade Creditors	7	provisions	2
Land & Building/plant	24	vehicles	8
Investment in NSCs	8	pre-operative Exp.	2
Stocks	14	consumable stores	2
Bills receivables	8	Sundry debtors	10
cash in hand	4	Sales	200

Calculate

Current ratio = $\frac{\text{Current Assest}}{\text{current Liability}} = \frac{\text{Stocks + Bank cash credit + prep Exp}}{\text{trade creditor + Bill debt + Term Loan + curr Liab.}}$

$= \frac{60+50+10}{50+50} = \frac{120}{100} = 1.2:1$

Debt Equity ratio = $\frac{\text{Long term Debt}}{\text{Long term fund}}$

$= \frac{\text{NSC + Loan from NBFC}}{\text{partners capital + General Reserve}}$

$= \frac{8+12}{16+4} = \frac{20}{20} = 1:1$

Acid test ratio (quick ratio) = $\frac{\text{Liquid assests}}{\text{current Liability}}$

Ans ⇒ 0.52:1

=

Stock turnover ratio = $\frac{\text{cost of Goods sold}}{\text{average Inventory}}$

Ans ⇒ 14.3 times

Debtor velocity ratio = $\frac{\text{Credit sales}}{\text{Average account receivable}}$

(Debt collection period)

Ans ⇒ 1.08 months

(Creditor Velocity / credit payment period)

Ans ⇒ 0.90 months

③ mr XYZ had following trial balances, as on 31/3/03

Capital	1 lacs	Loans	0.25 lacs
Bank Limit	- 1.33 lacs	Exp payable	0.10 lacs
Creditors	0.28 lacs	fixed Assets	0.65 lacs
Stocks	1.20 lacs	Book debt	1.05 lacs
Cash	0.06 lacs	Sales	5.00 lacs
purchases	3.50 lacs	Cost of Sales	4.00 lacs
Net profit	0.40 lacs	profit withdrawn	- 0.30 lacs

⇒ $\text{Net profit Ratio} = \frac{\text{Net profit after tax}}{\text{Sales}} \times 100$

$= \frac{0.4}{5} \times 100$

$= 8\%$

$\text{Gross profit} = \text{Sales} - \text{cost of sales}$

$= 5 - 4 = 1$ lacs

$\text{Debt collection period} = \frac{\text{Account Receivable}}{\text{Average monthly Credit Sales}}$

$= \frac{\text{Trade Debtors + Bill Receivable}}{\text{Average monthly credit Sales}}$

$= \frac{1.05}{5} \times 12$

$= 2.52$

quick ratio

Ans - 0.65

Current ratio

⇒ ans - 1.36 : 1

Debt equity ratio

Ans - 0.82 : 1

Return on equity

Ans - 44.44.

Stock turnover ratio

Ans - 4.2 times

Table D: Present Value Factor of an Annuity (PVFA) of Re 1

	Interest Rate													
Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.823	9.077	8.422	7.843	7.330	6.873
30	25.808	22.396	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.427	8.694	8.055	7.496	7.003
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.779	8.951	8.244	7.634	7.105
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.915	9.042	8.304	7.675	7.133

(Contd.)

Table D Contd.

Year	Interest Rate												
	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	30%	40%
1	0.870	0.862	0.855	0.847	0.840	0.833	0.826	0.820	0.813	0.806	0.800	0.769	0.714
2	1.626	1.605	1.585	1.566	1.547	1.528	1.509	1.492	1.474	1.457	1.440	1.361	1.224
3	2.283	2.246	2.210	2.174	2.140	2.106	2.074	2.042	2.011	1.981	1.952	1.816	1.589
4	2.855	2.798	2.743	2.690	2.639	2.589	2.540	2.494	2.448	2.404	2.362	2.166	1.849
5	3.352	3.274	3.199	3.127	3.058	2.991	2.926	2.864	2.803	2.745	2.689	2.436	2.035
6	3.784	3.685	3.589	3.498	3.410	3.326	3.245	3.167	3.092	3.020	2.951	2.643	2.168
7	4.160	4.039	3.922	3.812	3.706	3.605	3.508	3.416	3.327	3 242	3.161	2.802	2.263
8	4.487	4.344	4.207	4.078	3.954	3.837	3.726	3.619	3.518	3.421	3.329	2.925	2.331
9	4.772	4.607	4.451	4.303	4.163	4.031	3.905	3.786	3.673	3.566	3.463	3.019	2.379
10	5.019	4.833	4.659	4.494	4.339	4.192	4.054	3.923	3.799	3.682	3.571	3.092	2.414
11	5.234	5.029	4.836	4.656	4.486	4.327	4.177	4.035	3.902	3.776	3.656	3.147	2.438
12	5.421	5.197	4.988	4.793	4.611	4.439	4.278	4.127	3.985	3.851	3.725	3.190	2.456
13	5.583	5.342	5.118	4.910	4.715	4.533	4.362	4.203	4.053	3.912	3.780	3.223	2.469
14	5.724	5.468	5.229	5.008	4.802	4.611	4.432	4.265	4.108	3.962	3.824	3.249	2.478
15	5.847	5.575	5.324	5.092	4.876	4.675	4.489	4.315	4.153	4.001	3.859	3.268	2.484
16	5.954	5.668	5.405	5.162	4.938	4.730	4.536	4.357	4.189	4.033	3.887	3.283	2.489
17	6.047	5.749	5.475	5.222	4.990	4.775	4.576	4.391	4.219	4.059	3.910	3.295	2.492
18	6.128	5.818	5.534	5.273	5.033	4.812	4.608	4.419	4.243	4.080	3.928	3.304	2.494
19	6.198	5.877	5.584	5.316	5.070	4.843	4.635	4.442	4.263	4.097	3.942	3.311	2.496
20	6.259	5.929	5.628	5.353	5.101	4.870	4.657	4.460	4.279	4.110	3.954	3.316	2.497
25	6.464	6.097	5.766	5.467	5.195	4.948	4.721	4.514	4.323	4.147	3.985	3.329	2.499
30	6.566	6.177	5.829	5.517	5.235	4.979	4.746	4.534	4.339	4.160	3.995	3.332	2.500
40	6.642	6.233	5.871	5.548	5.258	4.997	4.760	4.544	4.347	4.166	3.999	3.333	2.500
50	6.661	6.246	5.880	5.554	5.262	4.999	4.762	4.545	4.348	4.167	4.000	3.333	2.500

e C Contd.

Year	Interest Rate												
	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	30%	40%
1	0.870	0.862	0.855	0.847	0.840	0.833	0.826	0.820	0.813	0.806	0.800	0.769	0.714
2	0.756	0.743	0.731	0.718	0.706	0.694	0.683	0.672	0.661	0.650	0.640	0.592	0.510
3	0.658	0.641	0.624	0.609	0.593	0.579	0.564	0.551	0.537	0.524	0.512	0.455	0.364
4	0.572	0.552	0.534	0.516	0.499	0.482	0.467	0.451	0.437	0.423	0.410	0.350	0.260
5	0.497	0.476	0.456	0.437	0.419	0.402	0.386	0.370	0.355	0.341	0.328	0.269	0.186
6	0.432	0.410	0.390	0.370	0.352	0.335	0.319	0.303	0.289	0.275	0.262	0.207	0.133
7	0.376	0.354	0.333	0.314	0.296	0.279	0.263	0.249	0.235	0.222	0.210	0.159	0.095
8	0.327	0.305	0.285	0.266	0.249	0.233	0.218	0.204	0.191	0.179	0.168	0.123	0.068
9	0.284	0.263	0.243	0.225	0.209	0.194	0.180	0.167	0.155	0.144	0.134	0.094	0.048
10	0.247	0.227	0.208	0.191	0.176	0.162	0.149	0.137	0.126	0.116	0.107	0.073	0.035
11	0.215	0.195	0.178	0.162	0.148	0.135	0.123	0.112	0.103	0.094	0.086	0.056	0.025
12	0.187	0.168	0.152	0.137	0.124	0.112	0.102	0.092	0.083	0.076	0.069	0.043	0.018
13	0.163	0.145	0.130	0.116	0.104	0.093	0.084	0.075	0.068	0.061	0.055	0.033	0.013
14	0 141	0.125	0.111	0.099	0.088	0.078	0.069	0.062	0.055	0.049	0.044	0.025	0.009
15	0.122	0.108	0.095	0.084	0.074	0.065	0.057	0.051	0.045	0.040	0.035	0.020	0.006
16	0.107	0.093	0.081	0.071	0.062	0.054	0.047	0.042	0.036	0.032	0.028	0.015	0.005
17	0.093	0.080	0.069	0.060	0.052	0.045	0.039	0.034	0.030	0.026	0.023	0.012	0.003
18	0.081	0.069	0.059	0.051	0.044	0.038	0.032	0.028	0.024	0.021	0.018	0.009	0.002
19	0.070	0.060	0.051	0.043	0.037	0.031	0.027	0.023	0.020	0.017	0.014	0.007	0.002
20	0.061	0.051	0.043	0.037	0.031	0.026	0.022	0.019	0.016	0.014	0.012	0.005	0.001
25	0.030	0.024	0.020	0.016	0.013	0.010	0.009	0.007	0.006	0.005	0.004	0.001	0.000
30	0.015	0.012	0.009	0.007	0.005	0.004	0.003	0.003	0.002	0.002	0.001	0.000	0.000
40	0.004	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table C: Present Value Factor of a Lump Sum (PVF) of Re 1

Year	Interest Rate													
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%
1	0.990	0.980	0.971	0.961	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059	0.047	0.038
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033	0.026	0.020
40	0.672	0.453	0.307	0.208	0.142	0.097	0.067	0.046	0.032	0.022	0.015	0.011	0.008	0.005
50	0.608	0.372	0.228	0.141	0.087	0.054	0.034	0.021	0.013	0.009	0.005	0.003	0.002	0.001

(Contd..)

STC Bangalore

23/07/2008

DISCOUNT TABLE

YEAR	DISCOUNT FACTOR - HOW MUCH 1 AT A FUTURE DATE IS WORTH TODAY							
	15%	20%	25%	30%	35%	40%	45%	50%
1	0.869565	0.833333	0.800000	0.769231	0.740741	0.714286	0.689655	0.666667
2	0.756144	0.694444	0.640000	0.591716	0.548697	0.510204	0.475624	0.444444
3	0.657516	0.578704	0.512000	0.455166	0.406442	0.364431	0.328017	0.296296
4	0.571753	0.482253	0.409600	0.350128	0.301068	0.260308	0.226218	0.197531
5	0.497177	0.401878	0.327680	0.269329	0.223014	0.185934	0.156013	0.131687
6	0.432328	0.334898	0.262144	0.207176	0.165195	0.132810	0.107595	0.087791
7	0.375937	0.279082	0.209715	0.159366	0.122367	0.094865	0.074203	0.058528
8	0.326902	0.232568	0.167772	0.122589	0.090642	0.067760	0.051175	0.039018
9	0.284262	0.193807	0.134218	0.094300	0.067142	0.048400	0.035293	0.026012
10	0.247185	0.161506	0.107374	0.072538	0.049735	0.034572	0.024340	0.017342
11	0.214943	0.134588	0.085899	0.055799	0.036841	0.024694	0.016786	0.011561
12	0.186907	0.112157	0.068719	0.042922	0.027289	0.017639	0.011577	0.007707
13	0.162528	0.093464	0.054976	0.033017	0.020214	0.012599	0.007984	0.005138
14	0.141329	0.077887	0.043980	0.025398	0.014974	0.008999	0.005506	0.003425
15	0.122894	0.064905	0.035184	0.019537	0.011092	0.006428	0.003797	0.002284
16	0.106865	0.054088	0.028147	0.015028	0.008216	0.004591	0.002619	0.001522
17	0.092926	0.045073	0.022518	0.011560	0.006086	0.003280	0.001806	0.001015
18	0.080805	0.037561	0.018014	0.008892	0.004508	0.002343	0.001246	0.000677
19	0.070265	0.031301	0.014412	0.006840	0.003339	0.001673	0.000859	0.000451
20	0.061100	0.026084	0.011529	0.005262	0.002474	0.001195	0.000592	0.000301

$$Vn = 1 / (1 + I)n$$

Vn = is the present worth of an amount of 1 at the end of term.

Internal Rate of Return

= Lower Discount Rate + Diff. between two discount rate

(Present worth of cash flow at the lower discount Rate) / (Absolute diff between the present worth of cash flows streams at the two discount rates)

Rate	8.00%	8.50%	9.00%	9.50%	10.00%	10.50%	11.00%	11.50%	12.00%	12.50%	13.00%	13.50%	14.00%	14.50%	15.00%
Tenure in years															
1	8699	8722	8745	8768	8792	8815	8838	8862	8885	8908	8932	8955	8979	9002	9026
2	4523	4546	4568	4591	4614	4638	4661	4684	4707	4731	4754	4778	4801	4825	4849
3	3134	3157	3180	3203	3227	3250	3274	3298	3321	3345	3369	3394	3418	3442	3467
4	2441	2465	2489	2512	2536	2560	2585	2609	2633	2658	2683	2708	2733	2758	2783
5	2028	2052	2076	2100	2125	2149	2174	2199	2224	2250	2275	2301	2327	2353	2379
6	1753	1778	1803	1827	1853	1878	1903	1929	1955	1981	2007	2034	2061	2087	2115
7	1559	1584	1609	1634	1660	1686	1712	1739	1765	1792	1819	1846	1874	1902	1930
8	1414	1439	1465	1491	1517	1544	1571	1598	1625	1653	1681	1709	1737	1766	1795
9	1302	1328	1354	1381	1408	1435	1463	1490	1518	1547	1575	1604	1633	1663	1692
10	1213	1240	1267	1294	1322	1349	1378	1406	1435	1464	1493	1523	1553	1583	1613
11	1142	1169	1196	1224	1252	1280	1309	1338	1368	1398	1428	1458	1489	1520	1551
12	1082	1110	1138	1166	1195	1224	1254	1283	1313	1344	1375	1406	1437	1469	1501
13	1033	1061	1090	1119	1148	1178	1208	1238	1269	1300	1331	1363	1395	1428	1460
14	991	1020	1049	1078	1108	1138	1169	1200	1231	1263	1295	1328	1360	1394	1427
15	956	985	1014	1044	1075	1105	1137	1168	1200	1233	1265	1298	1332	1366	1400
16	925	954	985	1015	1046	1077	1109	1141	1174	1207	1240	1274	1308	1342	1377
17	898	928	959	990	1021	1053	1085	1118	1151	1185	1219	1253	1287	1322	1358
18	875	905	936	968	1000	1032	1065	1098	1132	1166	1200	1235	1270	1306	1342
19	855	885	917	949	981	1014	1047	1081	1115	1150	1185	1220	1256	1292	1328
20	836	868	900	932	965	998	1032	1066	1101	1136	1172	1207	1244	1280	1317
21	820	852	885	917	951	985	1019	1054	1089	1124	1160	1196	1233	1270	1307
22	806	838	871	904	938	973	1007	1042	1078	1114	1150	1187	1224	1261	1299
23	793	826	859	893	927	962	997	1033	1069	1105	1142	1179	1216	1254	1292
24	782	815	849	883	917	952	988	1024	1060	1097	1134	1172	1210	1248	1286
25	772	805	839	874	909	944	980	1016	1053	1090	1128	1166	1204	1242	1281

Loan EMI for 1 lacs