dronacharya

FOR

CA INTERMEDIATE

2024

Marathon Part 1

Financial Management

Lecture - 01

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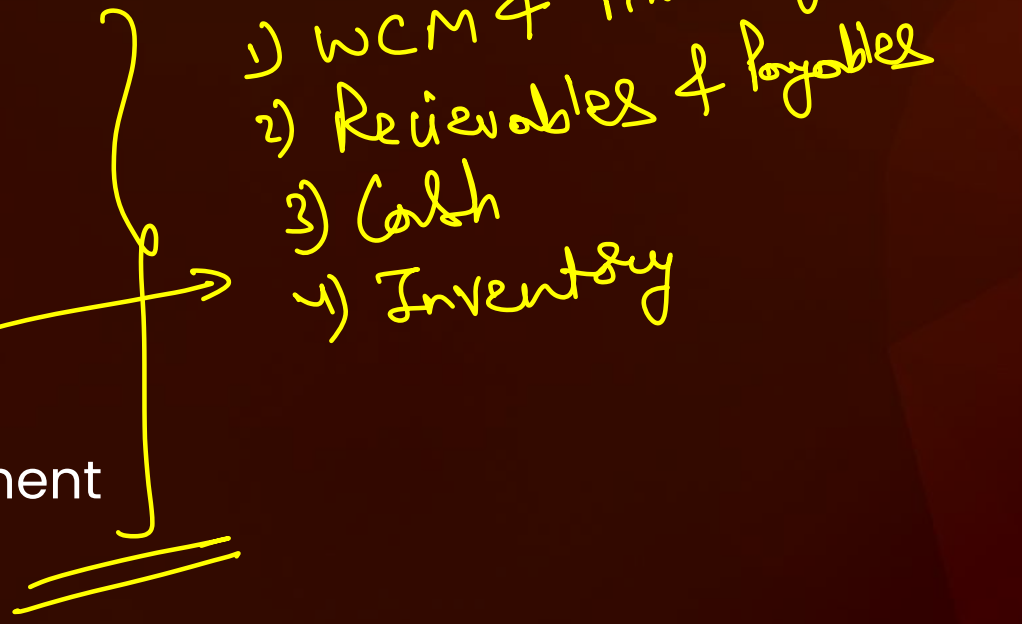
Topics *to be covered*

1. Cost of Capital
2. Leverage
3. Capital Structure
4. Working Capital Management
5. Scope & Objectives of Financial Management

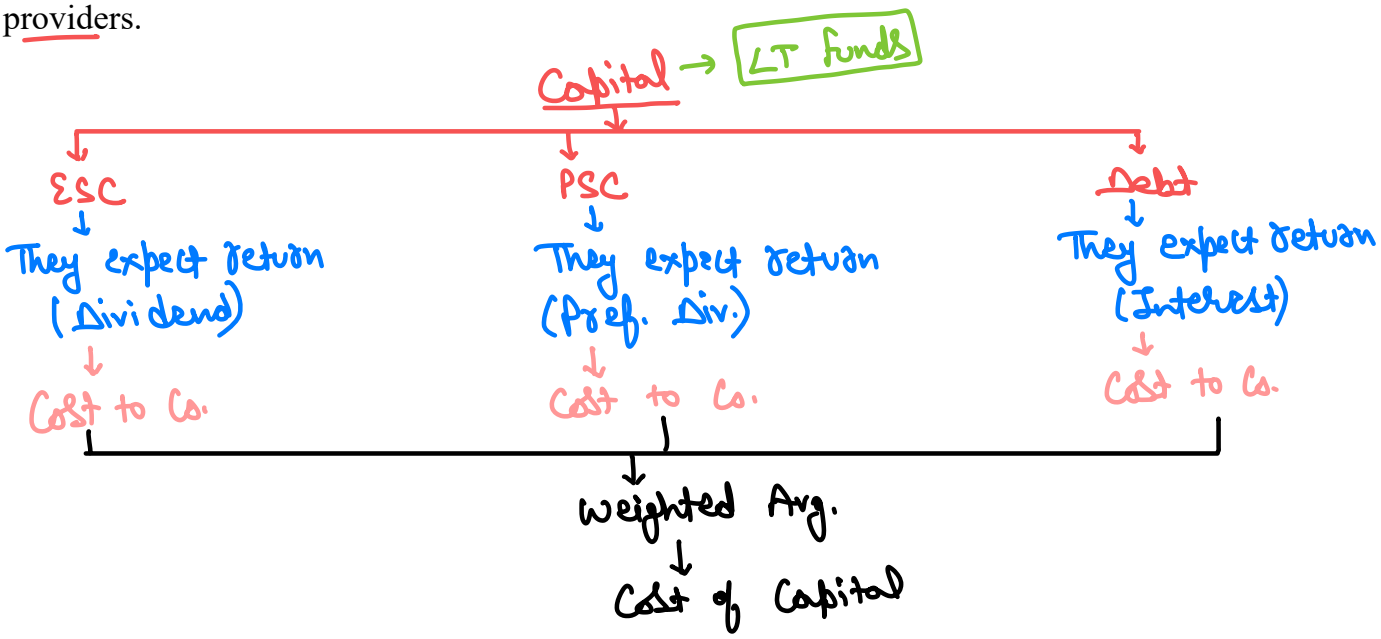


COST OF CAPITAL - CONCEPTS

1. Cost of Capital

It is the weighted average of cost of various sources from which capital is raised.

It is the minimum return to be earned by the company to meet the expectations of the capital providers.



I = Interest → Always on face value
t = Tax Rate
Rv = Redeemable Value → If Ques. Silent RV = FV
n = No. of years to maturity / redemption
NP = Net Proceeds / MV / FV
PD = Pref. Dividend → Always on FV

Face value
(+) Premium
(-) Discount
Issue Price / MV
(-) Flotation Cost
Net Proceeds

on Issue Price / MV → Default
on face value → If specifically given in Ques.

2. Cost of Irredeemable Debt

$$Kd = \frac{I(1-t)}{NP} \times 100$$

3. Cost of Redeemable Debt – Approximation Method

$$Kd = \frac{I(1-t)+\left(\frac{RV-NP}{n}\right)}{\left(\frac{NP+RV}{2}\right)} \times 100$$

4. Cost of Redeemable Debt – YTM Method

Find Kd using approximation method say x.y%

Find NPV at x% and (x + 1)% [one NPV is +ve & other NPV is -ve]

NPV = PVCI – PVCO

= [Int.(1 – t) × $PVAF_{(r,n)}$] + [RV × $PVF_{(r,n)}$] – Cost today

$$Kd = IRR = \text{Lower rate} + \frac{\text{Lower rate NPV}}{(\text{Lower rate NPV} - \text{Higher Rate NPV})} \times (High\ Rate - low\ Rate)$$

5. Cost of Redeemable Debt in instalment

Calculate cash flows of each year

Cash flow = [Interest × (1 – t)] + Amortized maturity amount p.a.

NPV → +ve / -ve

$$Kd = IRR = \text{Lower rate} + \frac{\text{Lower rate NPV}}{(\text{Lower rate NPV} - \text{Higher Rate NPV})} \times (High\ Rate - low\ Rate)$$

6. YTM vs Intrinsic Value

Rate

If we find rate for a given issue price → YTM

If rate is given and we require to find maximum price or issue price → Intrinsic value

(IV) Intrinsic value = PV of all future cash inflows

IV of bond / Deb. = PV of Interest + PV of Red. value

7. **Decision on basis of Intrinsic value (IV)**

(A) If IV > Current price → Recommend to buy or Undervalued/under priced

(B) If IV < Current price → Recommend Not to buy or Overvalued/overpriced

8. **Convertible Debentures**

Redeemable value = Higher of either cash or equity value

Value of one equity share = $P0 \times (1 + g)^n$

9. **Cost of Irredeemable Preference Shares**

$$Kp = \frac{PD}{NP} \times 100$$

10. **Cost of Redeemable Preference Shares – Approximation Method**

$$Kp = \frac{PD + \left(\frac{RV - NP}{n}\right)}{\left(\frac{NP + RV}{2}\right)} \times 100$$

11. **Cost of Redeemable Preference Shares – YTM Method**

$$Kp = IRR = \text{Lower rate} + \frac{Lower\ rate\ NPV}{(Lower\ rate\ NPV - Higher\ Rate\ NPV)} \times (High\ Rate - low\ Rate)$$

NPV = [PD × PVAF(0,n)] + [RV × PVF(0,n)] − Cost of PS

12. **Income Statement**

Sales	✓
(-) Variable Cost	✓
Contribution	✓
(-) Fixed Cost	✓
Operating Pft. (EBIT)	✓
(-) Interest	✓
EBT	✓
(-) Tax	✓
EAT	✓
(-) Pref. Dividend	✓
Earning for Equity (EAE)	✓
No. of Eq. Shares	✓
Earning Per Share (EPS)	✓

Dividend Per Share

Retaining Earning Per Share

13. **Cost of Equity – Dividend Approach** [Constant DPS OR No Growth]

$$Ke = \frac{D}{P0} \times 100$$

14. **Cost of Equity – Earning Approach** [Constant EPS OR No Growth]

$$Ke = \frac{E}{P0} \times 100$$

15. **Cost of Equity – Dividend Growth Approach or Constant Growth Approach or Gordon Model**

$$Ke = \frac{D1}{P0} + g$$

where,
D = Div. Per Share
E = Earning per Share
D_1 = Next expected dividend = $D_0(1+g)$
E_1 = EPS of Next Year = $E_0(1+g)$
P_0 = Net Proceeds / MV / FV
g = growth rate

$g = (b)(r)$

- Retention ratio = 100 − Div. payout ratio
- Rate of return

$D_0(1+g)^n = D_n$

$(1+g)^n = \frac{D_n}{D_0}$

$1+g = \sqrt[n]{\frac{D_n}{D_0}}$

$g = \sqrt[n]{\frac{D_n}{D_0}} - 1$

16. **Cost of Equity – Earning Growth Approach**

$$Ke = \frac{E1}{P0} + g$$

17. **Cost of Equity – Capital Assets Pricing Model**

$$Ke = Rf + (Rm - Rf)(\beta)$$

R_f = Risk Free Return
R_m = Market Return
$R_m - R_f$ = Risk Premium
β = Beta Coefficient = $\frac{\text{SD of assets}}{\text{SD of Market}} \times$ Correlation Coefficient

18. Cost of Equity – Realized Yield Approach

$R_1 = \frac{D_1 + (P_1 - P_0)}{P_0}$

$R_2 = \frac{D_2 + (P_2 - P_1)}{P_1}$

$R_3 = \frac{D_3 + (P_3 - P_2)}{P_2}$

Return of one year = $\frac{dividend + Capital\ Gain}{Investment}$

$Ke = \sqrt[n]{(1+r1) \times (1+r2) \times (1+r3) \dots \dots \dots (1+rn)} - 1$

Or If year wise price data is not given than use YTM method

19. Cost of Retained Earnings

$\frac{Kr}{P_0 \downarrow \rightarrow MV \rightarrow FV} = \frac{Ke}{P_0 \downarrow \rightarrow MV \rightarrow FV}$ ⇒ if no flotation cost then NP can't be computed

$\frac{Kr.}{P_0 \downarrow \rightarrow MV \rightarrow FV} \neq \frac{Ke}{P_0 \downarrow \rightarrow NP}$ ⇒ if there is flotation cost

In case if personal tax is given than

(or) $Kr = Ke(1 - tp) - B$ ⇒ Brokerage on investment

where, tp = Personal tax rate
B = Brokerage on income

Kr = Ke(1 – t_p)(1 – B)

(Default)

20. Weighted Average Cost of Capital (WACC = Ko)

- It is the weighted average of cost of all sources taken together.
- Ko = (Ke)(We) + (Kr)(Wr) + (Kp)(Wp) + (Kd)(Wd)
- Weights can be either book value or market value.

21. Points to Remember (PTRs)

- Flotation cost are not to be considered for calculating market value weights.

- Term loan doesn't have any market value. If market value is required than consider its book value to be its market value.

- We always require ex-dividend or ex-interest values.

- Ex-dividend value = Cum-dividend value – Dividend amount

- Ex-interest value = Cum-interest value – Interest amount

- Market value of an equity share represents value towards face value and reserve & surplus.

- If Kr ≠ Ke then distribute the total market value between face value and reserve and surplus in the ratio of their book value.

22. Weighted Marginal Cost of Capital (WMCC)

It is the cost of raising additional rupee of capital.

$Ke = \frac{D1}{P0} + g$

$0.325 = \frac{(12.76)(1+0.05)}{P0} + 0.05$

$\Rightarrow P0 =$

COST OF CAPITAL QUESTIONS

$Ke = 10 + (18)(1.25) = 32.5\%$

$10(1+g)^5 = 12.76$

$(1+g)^5 = 1.276$

$\therefore g = 5\%$

Question – 1

A company issues:

- 15% convertible debentures of ₹ 100 each at par with a maturity period of 6 years. On maturity, each debenture will be converted into 2 equity shares of the company. The risk-free rate of return is 10%, market risk premium is 18% and beta of the company is 1.25. The company has paid dividend of ₹ 12.76 per share. Five years ago, it paid dividend of ₹ 10 per share. Flotation cost is 5% of issue amount.
- 5% preference shares of ₹ 100 each at premium of 10%. These shares are redeemable after 10 years at par. Flotation cost is 6% of issue amount.

$110 - 6\% = 103.40$

Assuming corporate tax rate is 40%.

(i) Calculate the cost of convertible debentures using the approximation method.

(ii) Use YTM method to calculate the cost of preference shares.

Year	1	2	3	4	5	6	7	8	9	10
$PVIF_{0.03,t}$	0.971	0.943	0.915	0.888	0.863	0.837	0.813	0.789	0.766	0.744
$PVIF_{0.05,t}$	0.952	0.907	0.864	0.823	0.784	0.746	0.711	0.677	0.645	0.614
$PVIFA_{0.03,t}$	0.971	1.913	2.829	3.717	4.580	5.417	6.230	7.020	7.786	8.530
$PVIFA_{0.05,t}$	0.952	1.859	2.723	3.546	4.329	5.076	5.786	6.463	7.108	7.722

Interest rate	1%	2%	3%	4%	5%	6%	7%	8%	9%
$FVIF_{i,5}$	1.051	1.104	1.159	1.217	1.276	1.338	1.403	1.469	1.539
$FVIF_{i,6}$	1.062	1.126	1.194	1.265	1.340	1.419	1.501	1.587	1.677
$FVIF_{i,7}$	1.072	1.149	1.230	1.316	1.407	1.504	1.606	1.714	1.828

Solution

(i) As per CAPM, $Ke = R_f + [\beta \times (R_m - R_f)] = 10 + (18 \square 1.25) = 32.5\%$

Also, let growth rate = g

Now, $10(1 + g)^5 = 12.76$

$(1 + g)^5 = 1.276$

From the Interest rate table, we can say that g = 5% as for five years at 5% value is 1.276.

As per Constant growth model, $Ke = \frac{D1}{Po} + g$

$0.325 = \frac{12.76(1+0.05)}{P0} + 0.05$

$0.275 = \frac{13.398}{P0}$

P0 = 48.72

Thus, share price today = ₹ 48.72

Redemption value will be higher of:

(a) Cash value of debenture = ₹ 100

(b) Value of equity shares $= 2 \times 48.72 \times (1 + 0.05)^6 = 2 \times 48.72 \times 1.340 =$ ₹ 130.57

Thus, redemption value will be ₹ 130.57

Higher

As per approximation method,

$$Kd = \frac{I(1-t)+[(RV-NP)\div n]}{[(NP+RV)\div 2]}$$

I = 15% × 100 = 15 t = 0.40 RV = 130.57 NP = 100 – 5% = 95

$$Kd = \frac{15\ (1-0.40)+[\{130.57-95\}\div 6]}{[\{95+130.37\}\div 2]} = \frac{14.93}{112.785} = 0.1324 = 13.24\%$$

(ii) Cost of Preference Shares using YTM Method:

Preference dividend = 5% × 100 = 5

Redemption value = 100 years to maturity = 10

Investment = 100 + (100 × 10%) – (110 × 6%) = ₹ 103.40

NPV at 5% = PVCI – PVCO

= PV of Preference dividend + PV of Redemption Value – Investment

= [5 × 7.722] + [100 × 0.614] – 103.40 = - ₹ 3.39

NPV at 3% = PVCI – PVCO

= PV of Preference dividend + PV of Redemption Value – Investment

= [5 × 8.530] + [100 × 0.744] – 103.40 = ₹ 13.65

$$\text{Cost of Preference (Kp)} = L + \left[\frac{NPV_L}{NPV_L - NPV_H}\right](H-L) = 3 + \left[\frac{13.65}{13.65-(-3.39)}\right](5-3) = 4.60\%$$

Question – 2

SK Ltd. issued 12% Bonds of face value ₹ 2,000 each, which are redeemable after 5 years. Tax rate is 30% and the bonds are amortized equally over the life of bonds. Compute the value of the bond if the investor expects a minimum return of 8% from the bonds.

Solution

Year	Principal Outstanding	Principal Repayment (A)	Interest Payment Net of Tax (B)	Total Cash Flows (A+B)
1	2,000	400	2,000×12%×70% = 168	568
2	1,600	400	1,600×12%×70% = 134.4	534.40
3	1,200	400	1,200×12%×70% = 100.80	500.80
4	800	400	800×12%×70% = 67.20	467.20
5	400	400	400×12%×70% = 33.60	433.60

Value of the bond

= [568×PVF(8%,1)] + [534.40×PVF(8%,2)] + [500.80×PVF(8%,3)] + [467.20×PVF(8%,4)] + [433.60×PVF(8%,5)]

= (568×0.926) + (533.40×0.857) + (500.80×0.816) + (467.20×0.763) + (433.60×0.713)

= ₹ 2,057.38

If current value = Rs. 2100 → Not to buy – overpriced

If CV = Rs. 1900 → Yes to buy → underpriced

Question – 3

From the following information, calculate the cost of equity according to (a) Dividend price approach; (b) Dividend price plus growth approach; (c) Earning Price Ratio approach; (d) Earning price plus growth approach; (e) Capital assets pricing model;

1) Current market price of an equity share : ₹ 100
2) Expected earnings per share at the end of the year : ₹ 10
3) Dividend Payout ratio : 80%
4) Growth Rate : 6%
5) Rate of return on risk free investment : 8%
6) Rate of return on market portfolio : 18%
7) Volatility of securities return relative to the return of a broad based market portfolio : 1.275

Solution

(a) Dividend Price Approach

$$Ke = \frac{D_1}{P_0} = \frac{80\% \text{ of } 10}{100} = 8\%$$

(b) Dividend Price Plus Growth Approach

$$Ke = \frac{D_1}{P_0} + g = \frac{80\% \text{ of } 10}{100} + 6\% = 14\%$$

(c) Earning Price Approach

$$Ke = \frac{E_1}{P_0} = \frac{10}{100} = 10\%$$

(d) Earning Price plus Growth Approach

$$Ke = \frac{E_1}{P_0} + g = \frac{10}{100} + 6\% = 16\%$$

(e) Capital Assets Pricing Model

$$Ke = Rf + \beta \times (Rm - Rf) = 8\% + 1.275 \times (18\% - 8\%) = 20.75\%$$

Question – 4

The shares of a chemical company are selling at ₹ 20 per share. The firm had paid dividend @ ₹ 2 per share last year. The estimated growth of the company is approximately 5% per year.

(a) Determine the cost of equity capital of the company.

(b) Determine the estimated market price of the equity share if the anticipated growth rate of the firm

(i) rises to 8%

(ii) fall to 3%

Solution

(a) Net Proceeds (P0) = ₹ 20

Next expected dividend (D1) = D0×(1+g) = 2×(1+0.05) = ₹ 2.10

Cost of equity (Ke) = $\frac{D1}{P0} + g = \frac{2.10}{20} + 0.05 = 0.155 = 15.50\%$

(b) (i) Growth rate (g) = 8% = 0.08

$$Ke = \frac{D1}{P0} + g \Rightarrow Ke - g = \frac{D1}{P0} \Rightarrow P_0 = \frac{D_1}{Ke - g}$$

$$P_0 = \frac{2(1+0.08)}{0.155 - 0.08} = \frac{2.16}{0.075} = ₹\ 28.80$$

$$Ke = \frac{D1}{P0} + g$$

$$0.155 = \frac{2(1+0.08)}{Po} + 0.08$$

$$0.075 = \frac{2.16}{Po}$$

P0 = ₹ 28.80

(ii) Growth rate (g) = 3% = 0.03

$$Ke = \frac{D1}{P0} + g$$

$$0.155 = \frac{2(1+0.03)}{Po} + 0.03$$

$$0.125 = \frac{2.06}{Po}$$

P0 = ₹ 16.48

Question – 5

Following data relates to SK ltd.:

Year	1	2	3	4	5
Dividend per share	2.00	2.00	2.40	2.50	2.30
Price per share (at the beginning)	18.00	19.50	23.00	22.00	21.20

Calculate the cost of equity using realized yield approach.

Solution

Firstly, we have to compute the annual yield or return generated by the share over the years. For this purpose, we will assume that share was purchased at the beginning of year 1 (as no purchase data is provided).

$$1+Y_1 = \frac{D1+P1}{P0} = \frac{2+19.50}{18.00} = 1.1944$$

$$1+Y_2 = \frac{D2+P2}{P1} = \frac{2+23.00}{19.50} = 1.2821$$

$$1+Y_3 = \frac{D3+P3}{P2} = \frac{2.40+22.00}{23.00} = 1.0609$$

$$1+Y_4 = \frac{D4+P4}{P3} = \frac{2.50+21.20}{22.00} = 1.0772$$

Now we will calculate geometric mean of the above returns to calculate the cost of equity (realized return p.a.)

$$Ke = [(1+Y_1) \times (1+Y_2) \times \ldots\ldots\ldots \times (1+Y_n)]^{(1/n)} - 1$$

$$Ke = [1.1944 \times 1.2821 \times 1.0609 \times 1.0772]^{(1/4)} - 1 = 1.15 - 1 = 0.15 = 15\%$$

Question – 6

JC Ltd. is planning an equity issue in current year. It has an earning per share (EPS) of ₹ 20 and proposes to pay 60% dividend at the current year end. With a PE ratio 6.25, it wants to offer the issue at market price. The flotation cost is expected to be 4% of the issue price.

E = 20, D_0 = 20 × 60% = 12

MPS = EPS × PE = 20 × 6.25 = 125

P_0 = 125 − 4% = 120

PE Ratio = MPS / EPS

Required: Determine the required rate of return for equity share (cost of equity) before the issue and after the issue.

Solution

Current market price (P_0) = EPS × PE Ratio = 20 × 6.25 = ₹ 125

Rate of return (r) = 1 ÷ PE Ratio = 1 ÷ 6.25 = 16%

Retention ratio (b) = 100 – Dividend payout ratio = 100 – 60% = 40% = 0.40

Growth rate = b × r = 0.40 × 0.16 = 0.064

D_0 = EPS × Dividend payout ratio = 20 × 60% = ₹ 12

$D_1 = D_0 \times (1 + g) = 12 \times (1+0.064)$ = ₹ 12.768

Proceeds from new issue of shares = 125 – (125 × 4%) = ₹ 120

Cost of equity before issue (k_e) = $\frac{D1}{P0} + g = \frac{12.768}{125} + 0.064 = 0.1661 = 16.61\%$

Cost of equity after issue (k_e) = $\frac{D1}{P0} + g = \frac{12.768}{120} + 0.064 = 0.1704 = 17.04\%$

Question – 7

The capital structure of PQR Ltd. is as follows:

	₹
10% Debentures	3,00,000
12% Preference Shares	2,50,000
Equity Share (face value ₹ 10 per share)	5,00,000
	10,50,000

Additional Information:

(i) ₹ 100 per debenture redeemable at par has 2% flotation cost & 10 years of maturity. The market price per debenture is ₹ 110.

(ii) ₹ 100 per preference share redeemable at par has 2% flotation cost & 10 years of maturity. The market price per preference share is ₹ 108.

(iii) Equity share has ₹ 4 flotation cost and market price per share of ₹ 25. The next year expected dividend is ₹ 2 per share with annual growth of 5%. The firm has a practice of paying all earnings in the form of dividends.

(iv) Corporate Income Tax rate is 30%.

Required:

Calculate weighted average cost of capital (WACC) using market value weights.

Solution

Ke = $\frac{D1}{P0} + g = \frac{2}{(25-4)} + 0.05 = 0.1452 = 14.52\%$

Kd = $\frac{I(1-t)+[(RV-NP)\div n]}{[(NP+RV)\div 2]} = \frac{10\,(1-0.30)+[\{100-(110-2\%)\}\div 10]}{[\{100+(110-2\%)\}\div 2]} = \frac{6.22}{103.90} = 5.99\%$

Kp = $\frac{PD+[(RV-NP)\div n]}{[(NP+RV)\div 2]} = \frac{12+[\{100-(108-2\%)\}\div 10]}{[\{100+(108-2\%)\}\div 2]} = \frac{11.416}{102.92} = 11.09\%$

Computation of WACC (By Market Value Weights)

Source	Market Value (A)	Cost (B)	A × B
10% Debentures	$\frac{3,00,000}{100} \times 110 =$ 3,30,000	5.99%	19,767
12% Preference Share Capital	$\frac{2,50,000}{100} \times 108 =$ 2,70,000	11.09%	29,943
Equity Share Capital	$\frac{5,00,000}{10} \times 25 =$ 12,50,000	14.52%	1,81,500
	18,50,000		2,31,210

Weighted Average Cost of Capital = $\frac{2,31,210}{18,50,000} \times 100 = 12.498\%$

Question – 8

The latest Balance Sheet of SK Ltd. is given below:

	(₹ '000)
Ordinary shares (50,000 shares)	500
Share Premium	100
Retained profits	600
	1,200
8% Preference shares	400
13% Perpetual debts (Face value ₹ 100 each)	600
	2,200

The ordinary shares are currently priced at ₹ 39 ex-dividend each and ₹ 25 preference share is priced at ₹ 18 cum-dividend. The debentures are selling at 110% ex-interest and tax is paid by SK Ltd. at 40%. SK Ltd. has a beta of 0.90, risk free return is 10% & market return is 20%. Calculate the weighted average cost of capital, (based on market value) WACC of SK Ltd.

Solution

Cost of equity (Ke) = Rf + (Rm – Rf)(β) = 10 + (20 – 10)(0.90) = 19%

Since there is no flotation cost, thus cost of retained earning (Kr) = Ke = 19%

Price of preference share ex-dividend = 18 – (25 × 8%) = 18 – 2 = ₹ 16

Cost of preference shares (Kp) = $\frac{Pref.\ Dividend}{P0} = \frac{25 \times 8\%}{16}$ = 12.5%

Market price of debenture = 100 × 110% = ₹ 110

Cost of debt (Kd) = $\frac{I(1-t)}{P0} = \frac{100 \times 13\%}{110} \times 100$ = 7.09%

Calculation of weighted average cost of capital

Source	Market Value (₹) (A)	Cost (B)	A × B
Equity shareholder fund	50,000×39 = 19,50,000	19%	3,70,500
Preference Share	$\frac{4,00,000}{25} \times 16$ = 2,56,000	12.50%	32,000

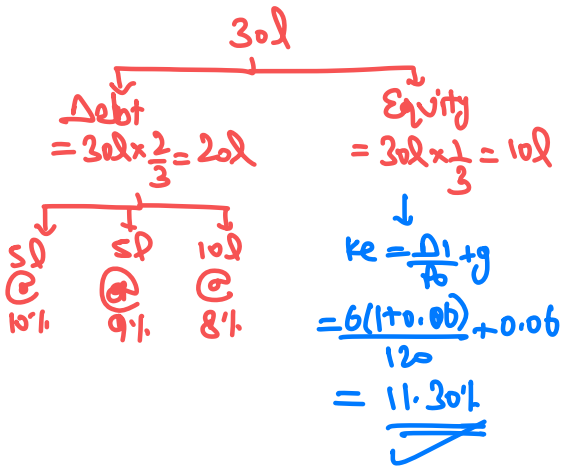
Debentures	$\frac{6,00,000}{100} \times 110 = 6,60,000$	7.09%	46,794
	28,66,000		4,49,294

Weighted average cost of capital $= \frac{4,49,294}{28,60,000} \times 100 = 15.68\%$

Question – 9

Following are the information of TT Ltd.:

Particulars	
Earnings per share	₹ 10
Dividend per share	₹ 6
Expected growth rate in Dividend	6%
Current market price per share	₹ 120
Tax rate	30%
Requirement of Additional Finance	₹ 30 lakhs
Debt Equity Ratio (For additional finance)	2:1
Cost of Debt	
0 - 5,00,000	10%
5,00,001 – 10,00,000	9%
Above 10,00,000	8%



Assuming that there is no Reserve and Surplus available in TT Ltd. You are required to:

(a) Find the pattern of finance for additional requirement

(b) Calculate post tax average cost of additional debt → $\frac{[(5l \times 10\%) + (5l \times 9\%) + (10l \times 8\%)](1-0.30)}{20l}$ = 6.125%

(c) Calculate cost of equity

(d) Calculate the overall weighted average after tax cost of additional finance

WACC = $(6.125)\left(\frac{20l}{30l}\right) + (11.30)\left(\frac{10l}{30l}\right)$ = 7.85%

Solution

(a) **Pattern of raising capital**

Debt (30,00,000 × 2/3)	= ₹ 20,00,000
Equity (30,00,000 × 1/3)	= ₹ 10,00,000
Equity Fund:	
Equity (additional)	= ₹ 10,00,000
	₹ 10,00,000
Debt Fund:	
10% Debt	= ₹ 5,00,000
9% Debt	= ₹ 5,00,000
8% Debt	= ₹ 10,00,000
	₹ 20,00,000

(b) $Kd = \frac{Interest\ (1-t)}{P0} \times 100 = \frac{[(5,00,000 \times 10\%) + (5,00,000 \times 9\%) + (10,00,000 \times 8\%)](1-0.30)}{20,00,000} \times 100$

$= \frac{1,22,500}{20,00,000} \times 100 = 6.125\%$

(c) $Ke = \frac{D(1+g)}{P0} + g = \frac{6 \times (1+0.06)}{120} + 0.06 = \frac{5.36}{120} + 0.06 = 0.113 = 11.3\%$

(d) Weighted average cost of capital

Source	Amount (₹)	Weight	Cost of capital after tax	WACC
Equity Fund	10,00,000	1/3	11.3	3.767
Debt Fund	20,00,000	2/3	6.125	4.083
Total	30,00,000	1		7.85

Question – 10

The SK Company has following capital structure at 31st March, 2021 which is considered to be optimum:

13% debenture	₹ 3,60,000
11% Preference share capital	₹ 1,20,000
Equity share capital (2,00,000 shares)	₹ 19,20,000

The company's share has a current market price of ₹ 27.75 per share. The expected dividend per share in next year is 50% of the 2021 EPS. The EPS of last 10 years is as follows. The past trends are expected to continue:

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
EPS	1.000	1.120	1.254	1.405	1.574	1.762	1.974	2.211	2.476	2.773

The company can issue 14% new debenture. The company's debenture is currently selling at ₹ 98. The new preference issue can be sold at a net price of ₹ 9.80, paying a dividend of ₹ 1.20 per share. The company's marginal tax rate is 50%.

(a) Calculate the after tax cost (i) of a new debts and new preference share capital, (ii) of ordinary equity assuming new equity comes from the retained earnings.

(b) Calculate the marginal cost of capital

(c) How much can be spent for capital investment before new ordinary share must be sold? Assuming that retained earnings available for next year's investment are 50% of 2021 earnings.

(d) What will be marginal cost of capital {cost of fund raised in excess of the amount calculated in part (c)} if the company can sell new ordinary shares to net ₹ 20 per share? The cost of debt and of preference capital is constant.

Solution

Existing Capital Structure Analysis

Source of Capital	Amount	Ratio
Equity	19,20,000	0.80
Preference Shares	1,20,000	0.05
Debentures	3,60,000	0.15
	24,00,000	1

(a) (i) Cost of new debt = Kd = $\frac{I(1-t)}{P0} = \frac{(14\% \times 100)(1-0.50)}{98} = 0.07143 = 7.143\%$

Cost of new preference shares = Kp = $\frac{PD}{P0} = \frac{1.20}{9.80} = 0.12245 = 12.245\%$

(ii) Cost of retained earnings = Kr = $\frac{D1}{P0} + g = \frac{2.773 \times 50\%}{27.75} + 0.12 = 0.17 = 17\%$

Here g = $\frac{2.773}{2.476} - 1 = 0.12 = 12\%$

(b) **Marginal Cost of Capital**

Source of Capital	Weight	Cost	WMCC
Equity	0.80	0.17	0.1360
Preference Shares	0.05	0.12245	0.0061
Debentures	0.15	0.07143	0.0107
	1.00		**0.1528 or 15.28%**

(c) Amount of retained earnings available = 2.773 × 50% × 2,00,000 = ₹ 2,77,300

The ratio of equity in the total capital is 80%.

Therefore, investment that can be done before issuing new equity shares = $\frac{2,77,300}{80\%}$ = ₹ 3,46,625

(d) Cost of new issue of equity shares = $\frac{D1}{P0} + g = \frac{2.773 \times 50\%}{20} + 0.12 = 0.1893 = 18.93\%$

Marginal Cost of Capital

Source of Capital	Weight	Cost	WMCC
Equity	0.80	0.1893	0.1514
Preference Shares	0.05	0.12245	0.0061
Debentures	0.15	0.07143	0.0107
	1.00		**0.1682 or 16.82%**

Cost of Capital

MCQs

Q(1). Which of the following is not an assumption of the capital asset pricing model (CAPM)?
A. the capital market is efficient
B. Investors lend or borrow at a risk-free rate of return
C. Investors do not have the same expectations about the risk and return
D. Investor's decisions are based on a single-time period

$15 = 5 + (10-5)(\beta) \Rightarrow \beta = 2$

Q(2). Given: risk-free rate of return = 5%; market return = 10%; cost of equity = 15%; value of bet (β) is:
A. 1.9
B. 1.8
C. 2.0
D. 2.2

Q(3). ____ may be defined as the cost of raising an additional rupee of capital:
A. Marginal cost of capital
B. Weighted average cost of capital
C. simple average cost of capital
D. Liquid cost of capital

Q(4). Which of the following cost of capital requires to adjust taxes?
A. Cost of equity share
B. Cost of preference shares
C. Cost of debentures
D. Cost of retained earnings

Q(5). Marginal cost of capital is the cost of:
A. Additional revenue
B. Additional funds
C. Additional interests
D. None of the above

Q(6). In order to calculate Weighted Average Cost of capital, weights may be based on:
A. Market values
B. Target values
C. Book values
D. Anyone of the above

$K_d = 5(1-0.30) = 3.5$

Q(7). Firm's cost of capital is the average cost of:
A. All sources of finance
B. All borrowings
C. All share capital
D. All bonds and debentures

$w_e = 0.70$ $K_e = 0.10$

Q(8) A company has a financial structure where equity is 70% of its total debt plus equity. Its cost of equity is 10% and gross loan interest is 5%. Corporation tax is paid at 30%. What is the company's weighted average cost of capital (WACC)?
A. 7.55%
B. 7.80%
C. 8.70%
D. 8.05%

$(0.70)(10) + (0.3)(3.5) = 8.05\%$

Q(9). The cost of equity capital is all of the following except:
A. The minimum rate that a firm should earn on the equity-financed part of an investment
B. A return on the equity-financed portion of an investment that, at worst, leaves the market price of the stock unchanged
C. By far, the most difficulty component cost to estimate
D. Generally, lower than the before-tax cost of debt

Q(10). What is the overall (weighted average) cost of capital when the firm has `20 crores in long-term debt, `4 crores in preferred stock, and `16 crores in equity shares? The before-tax cost for debt, preferred stock, and equity capital are 8%, 9% and 15%, respectively. Assume a 50% tax rate.
A. 7.60%
B. 6.90%
C. 7.30%
D. 8.90%

$K_d = 8(1-0.50) = 4$

$K_0 = \left(\frac{20\text{ Cr.}}{40\text{ Cr.}}\right)(4) + \left(\frac{4\text{ Cr.}}{40\text{ Cr.}}\right)(9) + \left(\frac{16\text{ Cr.}}{40\text{ Cr.}}\right)(15)$

$= 8.90\%$

LEVERAGE - CONCEPTS

1. Income Statement

Particulars	Amount
Sales	---
Less: Variable Cost	---
Contribution	---
Less: Fixed Cost	---
Earnings Before Interest & Tax (EBIT) / operating Pft	---
Less: Interest	---
Earnings Before Tax (EBT)	---
Less: Tax	---
Earnings After Tax (EAT)	---
Less: Preference Dividend	---
Earnings Available for Equity (EAE)	---
Number of Equity Shares	---
Earnings per Share	---

DoL

DFL

DCL

(1) (2) (3)

Dividend per Share

Retention per Share

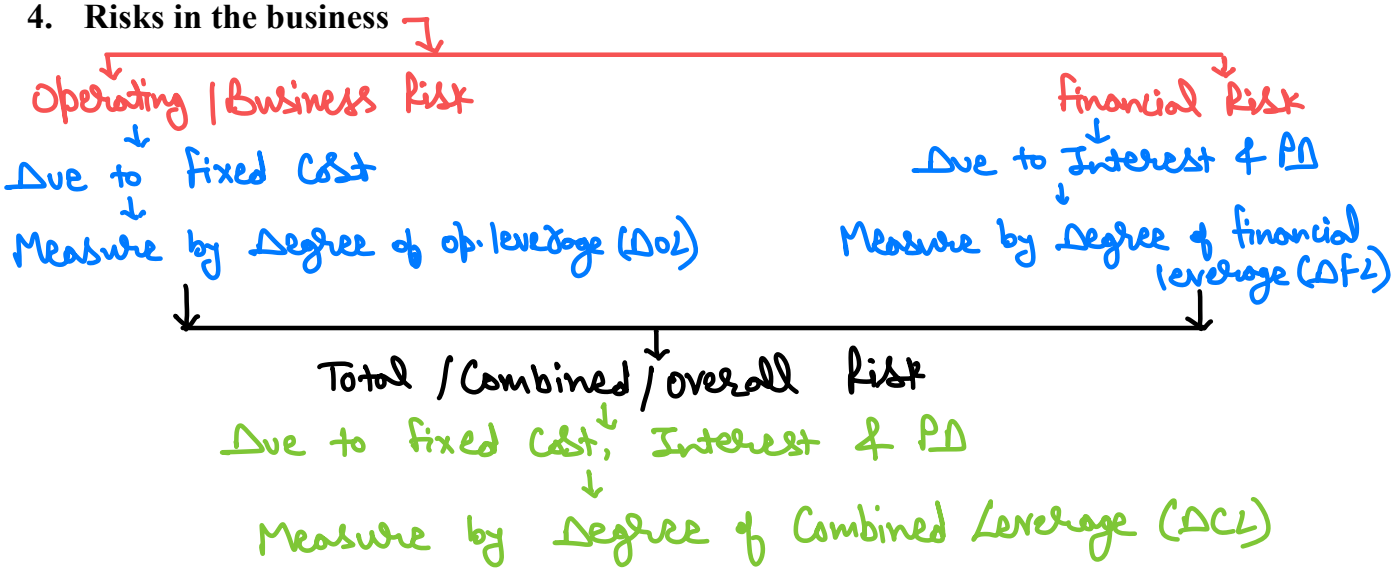
2. PV Ratio $= \frac{Contribution}{Sales} \times 100 =$ 100 – Variable Cost Ratio

VC Ratio $= \frac{Variable\ Cost}{Sales} \times 100$

3. PBT × (1 – t) = PAT

$PBT = \frac{PAT}{(1-t)}$

4. **Risks in the business**



5. **Degree of Operating Leverage (DOL)**

$$\text{DOL} = \frac{\%\ Change\ in\ EBIT}{\%\ Change\ in\ Sales}$$

$$\text{DOL} = \frac{Contribution}{EBIT}$$

6. **Degree of Financial Leverage (DFL)**

$$\text{DFL} = \frac{\%\ Change\ in\ EPS}{\%\ Change\ in\ EBIT}$$

$$\text{DFL (without preference shares)} = \frac{EBIT}{EBT} \Rightarrow PD = 0\ [\because \text{No PSC}]$$

$$\text{DFL (with preference shares)} = \frac{EBIT}{EBT - \left(\frac{PD}{1-t}\right)}$$

$$\frac{EBIT}{EBIT - Int. - \frac{PD}{(1-t)}} = \frac{EBIT}{EBT - \frac{PD}{(1-t)}}$$

7. **Degree of Combined Leverage (DCL)**

$$\text{DCL} = \frac{\%\ Change\ in\ EPS}{\%\ Change\ in\ Sales}$$

$$\text{DCL (without preference shares)} = \frac{Contribution}{EBT}$$

DCL (with preference shares) $= \frac{Contribution}{EBT - \left(\frac{PD}{1-t}\right)}$

DCL = DOL × DFL

8. Higher the level of leverage, high will be the level of that particular risk and vice-versa.

9. Operating BEP

Sales at which operating profit (EBIT) is zero

Operating BEP (units) $= \frac{Fixed\ Cost}{Contribution\ per\ unit}$

Operating BEP (in ₹) $= \frac{Fixed\ cost}{PV\ Ratio}$ = Operating BEP units × Selling price per unit

Margin of Safety $= \frac{1}{DOL}$

DOL	Fixed Cost	Operating BEP	MOS
High / Low	High / Low	High / Low	Low / High

Inverse

10. DOL Analysis

Situation	Result or Interpretation
No Fixed Cost ⇒ Cont. = EBIT	• DOL = 1 • No operating risk
High Fixed Cost	• High BEP • High DOL
Low Fixed Cost	• Low BEP • Low DOL
Sales > Operating BEP ⇒ EBIT > 0	• Existing Profit • DOL is positive
Sales < Operating BEP ⇒ EBIT < 0	• Existing Loss • DOL is negative

11. Financial BEP

Level of EBIT at which EPS is zero

Financial BEP = Interest + $\frac{PD}{(1-t)}$

EPS = $\frac{(EBIT - Interest)(1-t) - Pref.\ Div.}{No.\ of\ Eq.\ Shares}$

12. Analysis of DFL

Situation	Result or Interpretation
No Fixed Finance Cost ⇒ Int & PD = 0 ⇒ EBIT = EBT	• DFL = 1 • No financial risk
High Fixed Financial Cost	• High Financial BEP • High DFL
Low Fixed Financial Cost	• Low Financial BEP • Low DFL
EBIT > Financial BEP ⇒ EPS > 0	• EPS is positive • DFL is positive
EBIT < Financial BEP ⇒ EPS < 0	• EPS is negative • DFL is negative

13. Overall BEP

It is the level of sales at which EPS is zero.

Overall BEP in units = $\frac{Fixed\ cost + Interest + \left(\frac{PD}{1-t}\right)}{Contribution\ per\ unit}$

Overall BEP in ₹ = $\frac{Fixed\ cost + Interest + \left(\frac{PD}{1-t}\right)}{PV\ Ratio}$ = Overall BEP units × Selling price per unit

$$ROI = \frac{EBIT}{Invest.} \times 100 = \frac{EBIT}{(Eq. + PSC + Debt)} \times 100$$

14. Trading on Equity

If Rate of Interest < Return on Investment (ROI) ⇒ favourable

If Rate of Interest > Return on Investment (ROI) ⇒ Unfavourable / Against

15. Analysis of DCL

DOL (FC)	DFL (Int. & PD)	Result or Interpretation
High	High	• High risky situation
Low	Low	• Low risk situation
High	Low	• Moderate risk ✓ • EBIT is low ✓ → ROI is low • No benefit of trading on equity
Low	High Recomended level	• Moderate risk ✓ • EBIT is high → ROI high • Benefit of trading on equity available

Operating BEP

EBIT = 0

Contrib. − FC = 0

Contrib. = FC

No. of units × Cont. P.u. = FC

$$\text{No. of units} = \frac{FC}{\text{Cont. P.u.}}$$

$$\text{op. BEP (units)} = \frac{FC}{\text{Cont. P.u.}}$$

Financial BEP

EPS = 0

$$\frac{(EBIT - Int.)(1-t) - PD}{\text{No. of Eq. Sh.}} = 0$$

$$(EBIT - Int.)(1-t) - PD = 0$$

$$(EBIT - Int.)(1-t) = PD$$

$$EBIT - Int. = \frac{PD}{(1-t)}$$

$$EBIT = Int. + \frac{PD}{(1-t)}$$

$$\text{Fin. BEP} = Int. + \frac{PD}{(1-t)}$$

LEVERAGE QUESTIONS

Question – 1

A company had the following balance sheet as on 31st March, 2021:

Liabilities	₹ in crores	Assets	₹ in crores
Equity share capital (75 lakhs shares of ₹ 10 each)	7.50	Building	12.50
Reserve and Surplus	1.50	Machinery	6.25
15% Debentures	15.00	Current Assets	
Current Liabilities	6.00	Stock	3.00
		Debtors	3.25
		Bank Balance	5.00
	30.00		30.00

The additional information given is as under:

Fixed cost per annum (excluding interest)	₹ 6 crores
Variable operating cost ratio (VC Ratio)	60%
Total assets turnover ratio	2.5
Income tax rate	40%

TA turn. ratio = Sales / TA

2.5 = Sales / 30 Cr.

Sales = 75 Cr.

Calculate the following and comment:

(a) Earnings per share

(b) Operating leverage

(c) Financial leverage

(d) Combined leverage

Solution

Total assets turnover ratio = $\frac{Sales}{Total\ Assets}$

$2.5 = \frac{Sales}{30\ crores}$

Sales = ₹ 75 Crores

DOL = 30 / 24

DFL = 24 / 21.75

DCL = DOL × DFL

Income Statement

Particulars	Amount (₹)
Sales	75,00,00,000
Less: Variable Cost@ 60%	45,00,00,000
Contribution	30,00,00,000
Less: Fixed Cost	6,00,00,000
EBIT	24,00,00,000
Less: Interest (15 crore × 15%)	2,25,00,000
EBT	21,75,00,000
Less: Income tax @ 40%	8,70,00,000
EAT/EAE	13,05,00,000

60%

Given

On Deb. as per B/S

40%

(a) Earning per share $= \frac{EAE}{No.\ of\ equity\ shares} = \frac{13,05,00,000}{75,00,000} =$ ₹ 17.40 per share

It indicates the amount the company earns per share. It is used as a guide for valuing the share and making investment decisions by the investor.

(b) Operating Leverage $= \frac{Contribution}{EBIT} = \frac{30,00,00,000}{24,00,00,000} = 1.25$ times

It indicates the structure of fixed cost in the business. It indicates sensitivity of earnings before interest and tax (EBIT) to changes in sales at a particular level.

(c) Financial Leverage $= \frac{EBIT}{EBT} = \frac{24,00,00,000}{21,75,00,000} = 1.103$ times

It indicates the use of fixed financial cost in the capital structure. It indicates sensitivity of earning per share (EPS) to changes in earnings before interest and tax (EBIT) at a particular level.

(d) Combined Leverage = OL × FL = 1.2962 × 1.125 = 1.4582 times

It indicates the choice of fixed cost and fixed financial cost in the capital structure used. It indicates the sensitivity of earning per share (EPS) to changes in sales at a particular level.

Question – 2

Details of a company for the year ended 31st March, 2022 are given below:

Sales	₹ 86 lakhs
Profit Volume (P/V) Ratio	35%
Fixed cost excluding interest expenses	₹ 10 lakhs
10% Debt	₹ 55 lakhs
Equity Share Capital of ₹ 10 each	₹ 75 lakhs
Income Tax rate	40%

Required:

(i) Determine company's return on capital employed (pre-tax) and Eps.

(ii) Does the company have a favourable financial leverage?

(iii) Calculate operating and combine leverages of the company

(iv) Calculate percentage change in EBIT, if sales increases by 10%.

(v) At what level of sales, the Earning before Tax (EBT) of the company will be equal to zero?

Solution

Income Statement

Particulars	**Amount (₹)**
Sales	86,00,000
Less: Variable cost (86,00,000 × 65%)	55,90,000
Contribution	30,10,000
Less: Fixed cost	10,00,000
EBIT	20,10,000
Less: Interest (10% × 55,00,000)	5,50,000

EBT	14,60,000
Less: Tax @ 40%	5,84,000
EAT/EAE	8,76,000

(i) Return on capital employed = $\frac{EBIT}{Capital\ employed} \times 100 = \frac{20,10,000}{1,30,00,000} \times 100 = 15.46\%$

Earning per share = $\frac{EAE}{No.\ of\ Equity\ Shares} = \frac{8,76,000}{7,50,000} = ₹\ 1.168$

(ii) Since, the return on capital employed (15.46%) is more than the interest rate (10%), thus the company has a favourable financial leverage.

(iii) Operating leverage = $\frac{Contribution}{EBIT} = \frac{30,10,000}{20,10,000} = 1.498$ times

Combined leverage = $\frac{Contribution}{EBT} = \frac{30,10,000}{14,60,000} = 2.062$ times

(iv) Operating leverage = $\frac{\%\ Change\ in\ EBIT}{\%\ Change\ in\ Sales}$

$1.498 = \frac{\%\ Change\ in\ EBIT}{+10}$

% Change in EBIT = +14.98

Thus, EBIT increases by 14.98%

(v) Required sales = $\frac{Fixed\ cost + Interest}{PV\ Ratio} = \frac{(10,00,000+5,50,000)}{35\%} = ₹\ 44,28,571$

Question – 3

The following data is available for Stone Ltd.:

	(₹)
Sales	5,00,000
(-) Variable cost @ 40%	2,00,000
Contribution	3,00,000
(-) Fixed cost	2,00,000
EBIT	1,00,000
(-) Interest	25,000
Profit before tax	75,000

Using the concept of leverage, find out

(i) The percentage change in taxable income if EBIT increases by 10%.

(ii) The percentage change in EBIT if sales increases by 10%.

(iii) The percentage change in taxable income fi sales increases by 10%.

Also verify the results in each of the above case.

Solution

Degree of operating leverage (DOL) = $\frac{contribution}{EBIT} = \frac{3,00,000}{1,00,000} = 3$

Degree of financial leverage (DFL) = $\frac{EBIT}{EBT} = \frac{1,00,000}{75,000} = 1.33$

Degree of combined leverage (DCL) = $\frac{contribution}{EBT} = \frac{3,00,000}{75,000} = 4$

(i) Required % change in taxable income = DFL × Change in EBIT % = 1.33 × 10 = 13.33%

Verification

	(₹)
New EBIT (1,00,000 + 10%)	1,10,000
(-) Interest	25,000
Profit before tax	85,000

% change in taxable income = $\frac{85,000-75,000}{75,000} \times 100 = 13.33\%$

(ii) Required % change in EBIT = DOL × Change in Sales % = 3 × 10 = 30%

Verification

	(₹)
New Sales (5,00,000 + 10%)	5,50,000
(-) Variable cost @ 40%	2,20,000
Contribution	3,30,000
(-) Fixed cost	2,00,000
EBIT	1,30,000

% change in taxable income = $\frac{1,30,000-1,00,000}{1,00,000} \times 100 = 30\%$

(iii) Required % change in taxable income = DCL × Change in Sales % = 4 × 10 = 40%

Verification

	(₹)
New Sales (5,00,000 + 10%)	5,50,000
(-) Variable cost @ 40%	2,20,000
Contribution	3,30,000
(-) Fixed cost	2,00,000
EBIT	1,30,000
(-) Interest	25,000
Profit before tax	1,05,000

% change in taxable income = $\frac{1,05,000-75,000}{75,000} \times 100 = 40\%$

Question – 4

Calculate the operating leverage, financial leverage and combined leverage from the following data under Situation I and II and Financial Plan A and B:

Installed Capacity	4,000 units
Actual Production and Sales	75% of capacity
Selling Price	₹ 30 per unit
Variable Cost	₹ 15 per unit
Fixed Cost:	
Under Situation I	₹ 15,000
Under Situation II	₹ 20,000

	Financial Plan	
	A (₹)	B (₹)
Equity	10,000	15,000
Debt (Rate of interest at 20%)	10,000	5,000
	20,000	20,000

Solution

Particulars	Situation I	Situation II
Contribution [4,000 × 75% × (30 – 15)]	45,000	45,000
Less: fixed cost	(15,000)	(20,000)
EBIT	30,000	25,000
Operating Leverage (Contribution/EBIT)	1.5	1.8

Calculation of Financial & Combined Leverage

Financial Plan	Situation I		Situation II	
	A	B	A	B
EBIT	30,000	30,000	25,000	25,000
Less: Interest on debt	(2,000)	(1,000)	(2,000)	(1,000)
EBT	28,000	29,000	23,000	24,000
Financial Leverage (EBIT/EBT)	1.07	1.03	1.09	1.04
	1.5	1.5	1.8	1.8

Question – 5

Following is the Balance Sheet of Gitashree Ltd. is given below:

Liabilities	Amount (₹)
Shareholder's Fund	
Equity Share Capital (₹ 10 each)	1,80,000
Reserve & Surplus	60,000
Non-Current Liabilities (10% Debentures)	2,40,000
Current Liabilities	1,20,000
Total	**6,00,000**
Non-Current Assets	4,50,000
Current Assets	1,50,000
Total	**6,00,000**

The company's total assets turnover ratio is 4. Its fixed operating cost is ₹ 2,00,000 and its variable operating cost ratio is 60%. The income tax rate is 30%. Calculate:

(1) (a) Degree of operating leverage
(b) Degree of financial leverage
(c) Degree of combined leverage

(2) Find out EBIT if EPS is (a) ₹ 1; (b) ₹ 2; and (c) ₹ 0.

Solution

Total assets turnover ratio = $\frac{Sales}{Total\ Assets}$

$4 = \frac{Sales}{6,00,000}$

Sales = ₹ 24,00,000

Income Statement

Particulars	**Amount (₹)**
Sales	24,00,000
Less: Variable Cost@ 60%	14,40,000
Contribution	9,60,000
Less: Fixed Cost	2,00,000
EBIT	7,60,000
Less: Interest (2,40,000 × 10%)	24,000
EBT	7,36,000
Less: Income tax @ 30%	2,20,800
EAT/EAE	5,15,200

(1) (a) Operating Leverage = $\frac{Contribution}{EBIT} = \frac{9,60,000}{7,60,000}$ = 1.263 times

(b) Financial Leverage = $\frac{EBIT}{EBT} = \frac{7,60,000}{7,36,000}$ = 1.033 times

(c) Combined Leverage = OL × FL = 1.263 × 1.033 = 1.304 times

(2) (a) EPS = $\frac{(EBIT - Interest)(1-t)}{No.\ of\ equity\ shares}$

$1 = \frac{(EBIT - 24,000)(1-0.30)}{18,000}$

EBIT = ₹ 49,714

(b) EPS = $\frac{(EBIT - Interest)(1-t)}{No.\ of\ equity\ shares}$

$2 = \frac{(EBIT - 24,000)(1-0.30)}{18,000}$

EBIT = ₹ 75,429

(c) EPS = $\frac{(EBIT - Interest)(1-t)}{No.\ of\ equity\ shares}$

$0 = \frac{(EBIT - 24,000)(1-0.30)}{18,000}$

EBIT = ₹ 24,000

Question - 6

Following information has been provided by ABC Private Limited:

	(₹)
Sales	80,00,000
Variable cost	46,00,000

$RoI = \frac{EBIT}{Cap} \times 100$

$= \frac{(80L - 46L - 6.50L - 0.55L)}{110L} \times 100$

=

Fixed Costs	6,50,000
11% Borrowed Capital	50,00,000
Equity Capital	45,00,000
Retained earnings	15,00,000

Required:

(a) What is the firm's Return on Investment (ROI)?

(b) Does it have favorable financial leverage?

(c) If the firm belongs to an industry whose turnover is 3, does it have a high or low assets leverage?

(d) If the sales drop to ₹ 60,00,000, what will be the new EBIT?

(e) At what level of sales, will the EBT of the firm be equal to zero?

Solution

Income Statement

Particulars	Amount (₹)
Sales	80,00,000
Less: Variable Cost	46,00,000
Contribution	34,00,000
Less: Fixed costs	6,50,000
Earnings before interest and tax (EBIT)	27,50,000
Less: Interest on debt (50 lakhs × 11%)	5,50,000
Earnings before tax (EBT)	22,00,000

(a) $\text{ROI} = \frac{EBIT}{Capital\ Employed} \times 100 = \frac{EBIT}{Equity+Debt+Retained\ Earnings} \times 100$

$= \frac{27,50,000}{45,00,000+50,00,000+15,00,000} \times 100 = 25\%$

(b) ROI = 25% and interest on borrowed capital is 11%, hence it has a favourable financial leverage.

(c) Assets turnover $= \frac{Total\ Sales}{Assets} = \frac{80,00,000}{45,00,000+50,00,000+15,00,000} = 0.727$

The company has a low assets turnover as compared to the industry.

(d)

Particulars	Amount (₹)
Sales	60,00,000
Less: Variable cost $\left(\frac{46,00,000}{80,00,000} \times 60,00,000\right)$	34,50,000
Contribution	25,50,000
Less: Fixed costs	6,50,000
EBIT	19,00,000

(e) PV Ratio $= \frac{Contirbution}{Sales} \times 100 = \frac{34,00,000}{80,00,000} \times 100 = 42.50\%$

Required Sales $= \frac{Fixed\ cost+Interest}{PV\ Ratio} = \frac{6,50,000+5,50,000}{42.50\%} = ₹\ 28,23,529$

Question – 7

The information related to XYZ Company Ltd. for the year ended 31st March, 2020 are as follows:

Equity Share capital of ₹ 100 each	₹ 50 lakhs
12% Bonds of ₹ 1,000 each	₹ 30 lakhs
Sales	₹ 84 lakhs
Fixed cost (excluding interest)	₹ 7.50 lakhs
Financial leverage	1.39
Profit-volume ratio	25%
Market price per equity share	₹ 200
Income tax applicable	30%

You are required to CALCULATE:

(a) Operating Leverage
(b) Combined Leverage
(c) Earnings per share
(d) Earning Yield

Solution

Income Statement

Particulars	Amount (₹)
Sales	84,00,000
Less: Variable cost (84,00,000 × 75%)	63,00,000
Contribution (84,00,000 × 25%)	21,00,000
Less: Fixed cost	7,50,000
EBIT	13,50,000
Less: Interest on bonds (12% × 30 lakhs)	3,60,000
Less: Other fixed interest (bal. figure)	18,777
EBT (13,50,000 ÷ 1.39)	9,71,223
Less: Tax @ 30%	2,91,367
EAT	6,79,856

(a) Operating Leverage $= \frac{Contribution}{EBIT} = \frac{21,00,000}{13,50,000} = 1.56$ times

(b) Combined Leverage = Operating Leverage × Financial Leverage = 1.56 × 1.39 = 2.13

(c) Earnings per share (EPS) $= \frac{EAT}{No.\ of\ shares\ outstanding} = \frac{6,79,856}{50,000} =$ ₹ 13.597

(d) Earning yield $= \frac{EPS}{Market\ price\ per\ share} \times 100 = \frac{13.597}{200} \times 100 = 6.798\%$

Question – 8

From the following information, prepare Income Statement of Company A & B:

Particulars	Company A	Company B
Margin of safety	0.20	0.25
Interest	₹ 3,00	₹ 2,000
Profit volume ratio	025%	33.33%
Financial Leverage	4	3
Tax rate	45%	45%

Solution

Income Statement

Particulars	Company A (₹)	Company B (₹)
Sales	80,000	36,000
(-) Variable cost	60,000	24,000
Contribution	20,000	12,000
(-) Fixed cost	16,000	9,000
EBIT	4,000	3,000
(-) Interest	3,000	2,000
EBT	1,000	1,000
(-) Tax @ 45%	450	450
EAT	550	550

Working Notes:

(i) Company A

Financial leverage $= \frac{EBIT}{EBIT - Interest}$

4 times $= \frac{EBIT}{EBIT - 3{,}000}$

4(EBIT) - ₹ 12,000 = EBIT

EBIT = ₹ 4,000

Company B

Financial leverage $= \frac{EBIT}{EBIT - Interest}$

3 times $= \frac{EBIT}{EBIT - 2{,}000}$

3(EBIT) - ₹ 6,000 = EBIT

EBIT = ₹ 3,000

(ii) Company A

Operating leverage $= \frac{1}{Margin\ of\ Safety} = 1 \div 0.20 = 5$ times

Operating leverage $= \frac{contribution}{EBIT}$

5 times $= \frac{contribution}{4{,}000}$

Contribution = ₹ 20,000

Company B

Operating leverage = $\frac{1}{Margin\ of\ Safety}$ = 1 ÷ 0.25 = 4 times

Operating leverage = $\frac{contribution}{EBIT}$

4 times = $\frac{contribution}{3,000}$

Contribution = ₹ 12,000

(iii) Company A

Sales = $\frac{Contribution}{PV\ Ratio}$ = $\frac{20,000}{25\%}$ = ₹ 80,000

Company B

Sales = $\frac{Contribution}{PV\ Ratio}$ = $\frac{12,000}{33.33\%}$ = ₹ 36,000

Question – 9

Information of A Ltd. is given below:

- Earnings after tax: 5% on sales
- Income tax rate: 50%
- Degree of operating leverage: 4 times
- 10% Debenture in capital structure: ₹ 3 lakhs
- Variable costs: ₹ 6 lakhs

Required:

(i) From the given data complete the following statement:

Sales	XXXX
Less: Variable costs	6,00,000
Contribution	XXXX
Less: Fixed costs	XXXX
EBIT	XXXX
Less: Interest expenses	XXXX
EBT	XXXX
Less: Income tax	XXXX
EAT	XXXX

(ii) Calculate Financial Leverage and Combined Leverage.

(iii) Calculate the percentage change in earning per share, if sales increased by 5%.

Solution

Let sales = y

Degree of operating leverage = $\frac{Contirbution}{EBIT}$

4 = $\frac{Contirbution}{EBIT}$

4(EBIT) = Sales – Variable cost

4(EBIT) = Sales – 6,00,000

EBIT = 0.25(y) - 1,50,000……(i)

Also, given Earning after tax = 5% of sales

5% × Sales = (EBIT – Interest)(1 – t)

0.05y = [0.25y – 1,50,000 – (3,00,000 × 10%)](1 – 0.50)

0.05y = (0.25y – 1,80,000)(0.50)

0.05y = 0.125y – 90,000

0.075y = 90,000

y = 12,00,000

Thus, EBIT = 0.25(12,00,000) – 1,50,000 = 1,50,000

Fixed cost = Contribution – EBIT = (12,00,000 – 6,00,000) – 1,50,000 = 4,50,000

Income Statement

Sales	12,00,000
Less: Variable costs	6,00,000
Contribution	6,00,000
Less: Fixed costs	4,50,000
EBIT	1,50,000
Less: Interest expenses (3,00,000×10%)	30,000
EBT	1,20,000
Less: Income tax @50%	60,000
EAT	60,000

5% for check

(a) Financial Leverage = $\frac{EBIT}{EBT} = \frac{1,50,000}{1,20,000}$ = 1.25 times

Combined Leverage = $\frac{Contribution}{EBT} = \frac{6,00,000}{1,20,000}$ = 5 times

(b) Combined Leverage = $\frac{\%\ Change\ in\ EPS}{\%\ Change\ in\ Sales}$

$5 = \frac{\%\ Change\ in\ EPS}{+5}$

% change in EPS = +25%

Thus, EPS increases by 25.

Leverage

MCQs

Q(1). Given

Operating fixed costs	₹ 20,000
Sales	₹ 1,00,000
P/V ratio	40%

The operating leverage is:

A. 2.00
B. 2.50
C. 2.67
D. 2.47

Q(2). If EBIT is ₹ 15,00,000, interest is ₹ 2,50,000, corporate tax is 40%, degree of financial leverage is:

A. 1.11
B. 1.20
C. 1.31
D. 1.41

Q(3). If DOL is 1.24 and DFL is 1.99, DCL would be:

A. 2.14
B. 2.18
C. 2.31
D. 2.47

Q(4). Operating leverage is calculated as:

A. Contribution ÷ EBIT
B. EBIT ÷ PBT
C. EBIT ÷ Interest
D. EBIT ÷ Tax

Q(5). Financial leverage is calculated as:

A. EBIT ÷ Contribution
B. EBIT ÷ PBT
C. EBIT ÷ Sales
D. EBIT ÷ Variable cost

Q(6). Which of the following is correct?

A. CL = OL + FL
B. CL = OL - FL
C. CL = OL × FL
D. CL = OL ÷ FL

Q(7). Which of the following indicates business risk?

A. Operating leverage
B. Financial leverage
C. Combined leverage
D. Total leverage

Q(8). Degree of combined leverage is the fraction of:

A. Percentage change in EBIT on Percentage change in Sales
B. Percentage change in EPS on Percentage change in Sales
C. Percentage change in Sales on Percentage change in EPS
D. Percentage change in EPS on Percentage change in EBIT

Q(9). From the following information, calculate combined leverage:

Sales	₹ 20,00,000
Variable cost	40%
Fixed cost	₹ 10,00,000
Borrowings	₹ 10,00,000 @ 8% p.a.

A. 10 times
B. 6 times
C. 1.667 times
D. 0.10 times

Q(10). Operating leverage is a function of which of the following factors?

A. Amount of variable cost
B. Variable contribution margin
C. Volume of purchases
D. Amount of semi-variable cost

Q(11). Financial leverage may be defined as:
A. Use of funds with a product cost in order to increase earnings per share
B. Use of funds with a contribution cost in order to increase earnings before interest and taxes
C. Use of funds with a fixed cost in order to increase earnings per share
D. Use of funds with a fixed cost in order to increase earnings before interest and taxes

Q(12). If Margin of Safety is 0.25 and there is 8% increase in output, then EBIT will be:
A. Decrease by 2%
B. Increase by 32%
C. Increase by 2%
D. Decrease by 32%

Q(13). If degree of financial leverage is 3 and there is 15% increase in Earning per share (EPS), then EBIT will be:
A. Decrease by 15%
B. Increase by 45%
C. Decrease by 45%
D. Increase by 5%

Q(14). When EBIT is much higher than Financial break-even point, then degree of financial leverage will be slightly:
A. Less than 1
B. Equals to 1
C. More than 1
D. Equals to 0

Q(15). Firm with high operating leverage will have:
A. Higher breakeven point
B. lower business risk
C. Higher margin of safety
D. All of above

Q(16). When sales are at breakeven point, the degree of operating leverage will be:
A. Zero
B. Infinite
C. One
D. None of above

Q(17). If degree of combined leverage is 3 and margin of safety is 0.50, then degree of financial leverage is:
A. 6.00
B. 3.00
C. 0.50
D. 1.50

CAPITAL STRUCTURE - CONCEPTS

1. **Capital Structure**

LT funds — Mix

↓

Optimal Mix of Capital

A) EBIT & EPS Analysis

B) Capital Structure Theories

2. **Objectives of FM**

Wealth Maximization i.e. Dividend & Capital appreciation

Dividend → Ignore for decision making

Capital appreciation → Consider for decision making

↓

Objective → MPS maximization

↓

If MPS can't be Computed then decide on basis of EPS

3. **PE Ratio** $= \frac{MPS}{EPS}$

Price-Earning

↑

MPS = PE Ratio × EPS

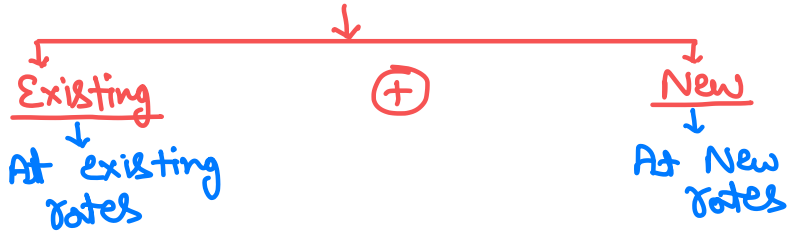
MPS → Expected; PE Ratio → Past trend; EPS → calculate Probable EPS

4. **Statement of MPS**

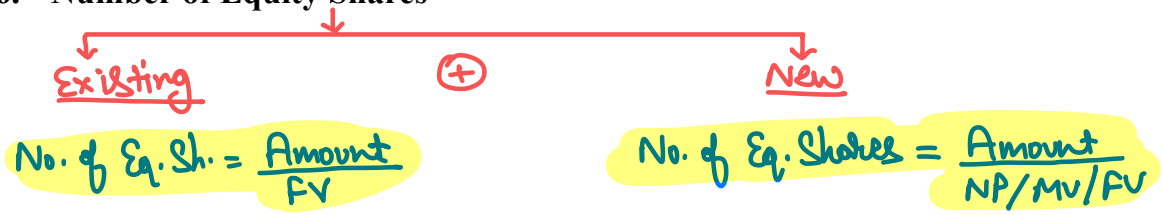
Particulars	Plan – A	Plan – B
EBIT (Operating Profit)	✓	✓
(-) Interest [Exist. + New]	✓	✓
EBT	✓	✓
(-) Tax	✓	✓
EAT	✓	✓

(-) Preference Dividend [Exist. + New]	✓	✓
EAE (Earning available for Equity)	✓	✓
No. of Equity Shares	✓	✓
MPS	✓	✓
PE Ratio	✓	✓
MPS [EPS × PE Ratio]	✓	✓

5. Interest and Preference Dividend



6. Number of Equity Shares



7. Points to Remember (PTRs)

- EBIT will remain same for all options
- EBIT is independent of capital structure
- EBIT is dependent on amount of capital employed
- Rate of return on capital employed will remain same, unless and until specifically mentioned in question
- New EBIT = New capital employed × Return on capital employed (ROCE)
- Return on capital employed (ROCE) = $\frac{Existing\ EBIT}{Existing\ Capital\ Employed}$

8. Indifference Level

Level of EBIT where EPS of the two options will be equal.

$$EPS = \frac{(EBIT - Int.)(1-t) - Pref.\ Div.}{No.\ of\ Eq.\ Shares}$$

$$\frac{\text{EPS of option Debt + Equity}}{\frac{(EBIT - Int.)(1-t)}{N_1}} = \frac{\text{EPS of option Debt + Equity + PSC}}{\frac{(EBIT - Int.)(1-t) - Pref.\ Div.}{N_2}}$$

Solve to find out EBIT

9. In case if there are three options then solve as follows:

(i) A & B ✓

(ii) B & C ✓

(iii) A & C ✓

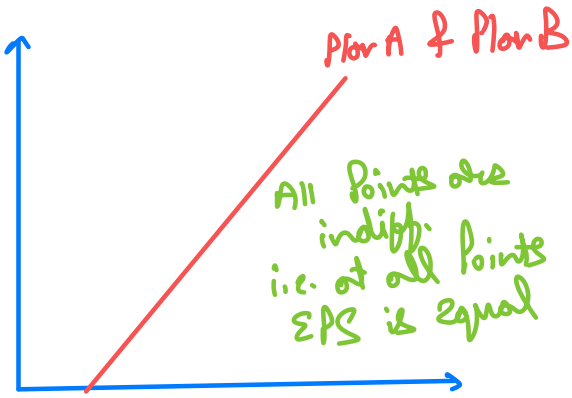
10. To prepare graph:

Step – 1) Find indifference level

Step – 2) Find financial BEP = $\text{Interest} + \frac{PD}{(1-t)}$

Step – 3) Identify Financial BEP on X axis and should intersect at indifference level.

11. If number of shares are equal among two options then there will be either no indifference point or all points are indifference



12. Capital Structure Theories

use of Debt in Capital Structure → Yes / No

use debt if V_F increases (or) K_o decreases

Use of debt will affect V_F & K_o

- → Net Income (NI)
- → Traditional Approach

Use of debt will not affect V_F & K_o

- → Net Operating Income (NOI)
- → MM Approach

13. Basic Points

A) $K_d = \frac{\text{Interest}}{\text{Value of Debt}} = \frac{\text{Int.}}{V_D} \Rightarrow V_D = \frac{\text{Int.}}{K_d}$

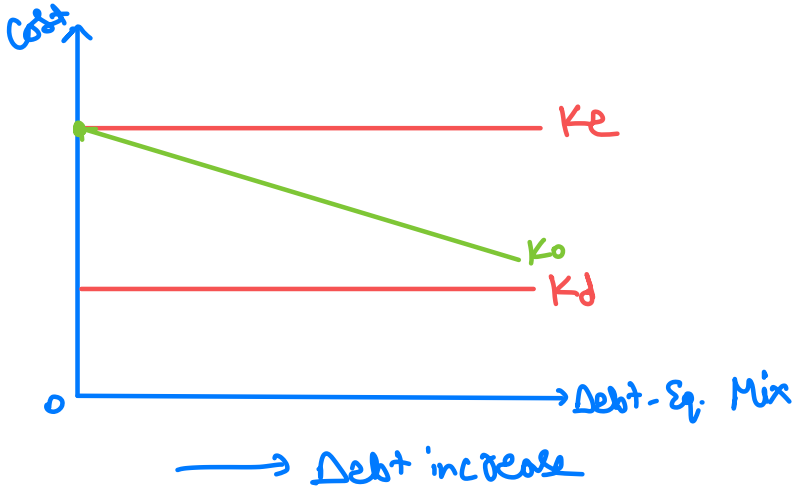
B) $K_e = \frac{(EBIT - \text{Int.})}{\text{Value of Equity}} = \frac{EBT}{V_E} \Rightarrow V_E = \frac{EBT}{K_e}$

C) $V_F = V_D + V_E$

D) $K_o = \frac{EBIT}{(V_D + V_E)} = \frac{EBIT}{V_F} \Rightarrow V_F = \frac{EBIT}{K_o}$

E) If there is no debt than $K_o = K_e$

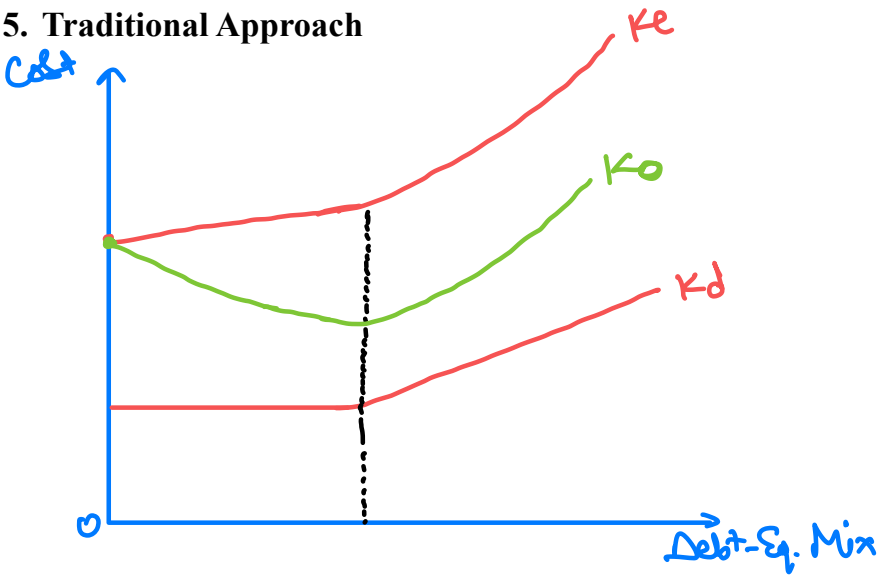
14. Net Income Approach



1) V_D
2) Kd & Ke will be given & are constant
3) $V_E = \frac{(EBIT - Int.)}{Ke}$
4) $V_F = V_D + V_E$
5) $K_o = \frac{EBIT}{V_F}$
$= (Ke)\left(\frac{V_E}{V_F}\right) + (Kd)\left(\frac{V_D}{V_F}\right)$

Recommend
↳ use Maximum amount of debt

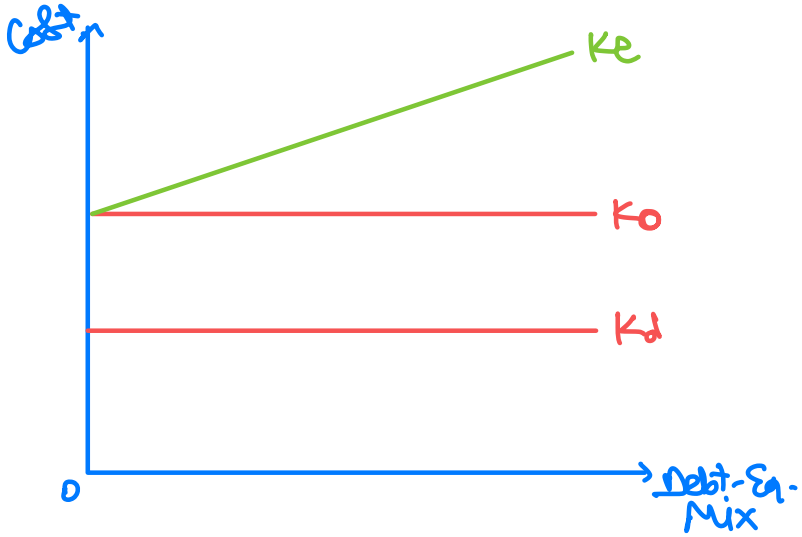
15. Traditional Approach



1) V_D
2) Kd & Ke will be given for different levels.
3) $V_E = \frac{(EBIT - Int.)}{Ke}$
4) $V_F = V_D + V_E$
5) $K_o = \frac{EBIT}{V_F}$
$= (Ke)\left(\frac{V_E}{V_F}\right) + (Kd)\left(\frac{V_D}{V_F}\right)$

Recommn.
↳ use level of debt where Ko is minimum.

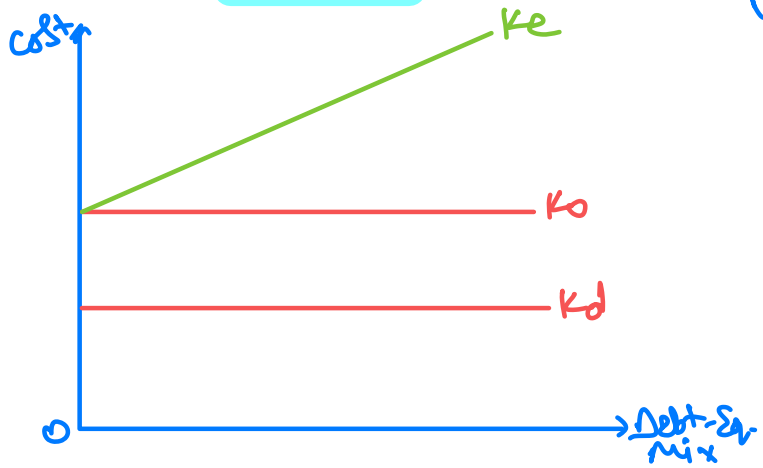
16. Net Operating Income Approach

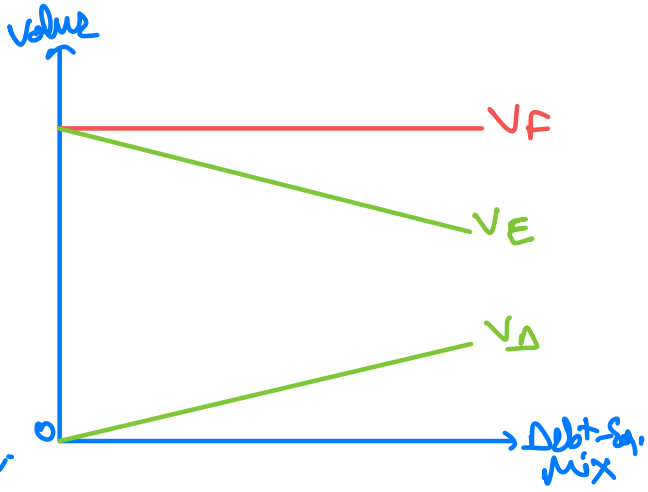


1) V_D
2) Ko will be given & remain constant
3) $V_F = \frac{EBIT}{K_o}$
4) $V_E = V_F - V_D$
5) $K_e = \frac{(EBIT - Int.)}{V_E}$

Recomm.
↳ All options are best

17. MM Model without Tax





$$K_{e_L} = K_{e_U} + \left[(K_{e_U} - K_d) \times \frac{Debt}{Equity}\right]$$

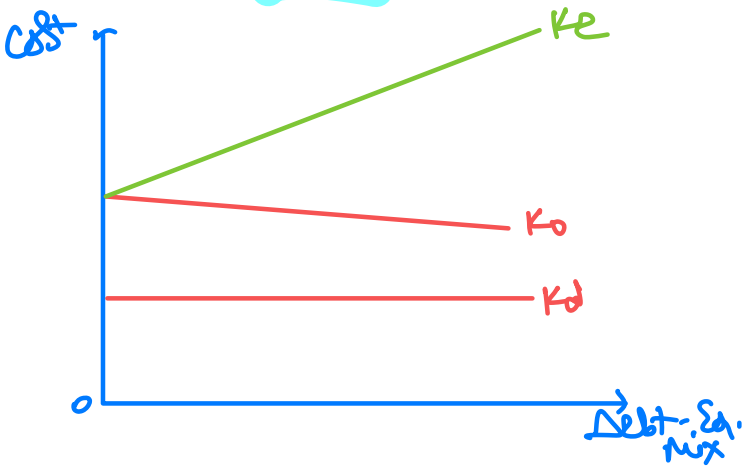
K_{e_U} → Segment due to Equity

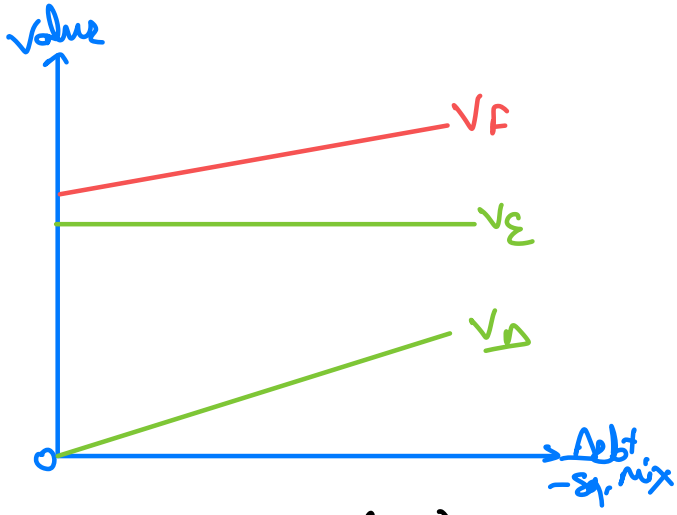
$(K_{e_U} - K_d) \times \frac{Debt}{Equity}$ → Segment due to Debt

$$V_L = V_U = \frac{EBIT}{K_o\ (or\ K_{e_U})}$$

Firms
- Levered firms → firms with debt
- Unlevered firms → firms w/o debt

18. MM Model with Tax





$$Ke_L = Ke_U + \left[(Ke_U - Kd)(1-t) \times \frac{Debt}{Equity}\right]$$

$$V_U = \frac{EBIT(1-t)}{Ke_U \ (or\ Ko)}$$

$$V_L = V_U + (Debt \times tax\ rate)$$

19. Arbitrage Process

(Cap. Structure) From → (Invest. Structure) To

Case-1) Levered → Unlevered

Cap. = Eq. + Debt (Loan taken) → Invest. = Equity

Case-2) Unlevered → Levered

Cap. = Equity → Invest. = Eq. + Debt (Loan given)

CAPITAL STRUCTURE QUESTIONS

Question – 1

The particulars relating to Raj Ltd. for the year ended 31st March, 2022 are given as follows:

Output (units at normal capacity)	1,00,000
Selling price per unit	₹ 40
Variable cost per unit	₹ 20
Fixed cost	₹ 10,00,000

The capital structure of a company as on 31st March, 2022 is as follows:

Particulars	Amount in ₹
Equity share capital (1,00,000 shares of ₹ 10 each)	10,00,000
Reserve and surplus	5,00,000
Current liabilities	5,00,000
Total:	**20,00,000**

Raj Ltd. has decided to undertake an expansion project to use the market potential that will involve ₹ 20 lakhs. The company expects an increase in output by 50%. Fixed cost will be increase by ₹ 5,00,000 and variable cost per unit will be decreased by 15%. The additional output can be sold at existing selling price without any adverse impact on the market.

The following alternative schemes for financing the proposed expansion program are planned:

		(Amount in ₹)
Alternative	**Debt**	**Equity Shares**
1	5,00,000	Balance
2	10,00,000	Balance
3	14,00,000	Balance

Current market price per share is ₹ 200.

Slab wise interest rate for fund borrowed is as follows:

Fund Limit	Applicable interest rate
Up-to ₹ 5,00,000	10%
Over ₹ 5,00,000 and up-to ₹ 10,00,000	15%
Over ₹ 10,00,000	20%

Find out which of the above-mentioned alternatives would you recommend for Raj Ltd. with reference to the EPS, assuming a corporate tax rate is 40%?

Solution

Calculation of EBIT

Particulars	Existing	Proposed
Sale units	1,00,000	1,50,000
Contribution per unit	40 – 20 = 20	40 – (20 × 85%) = 23
Total contribution	20,00,000	34,50,000
Less: Fixed cost	10,00,000	15,00,000
EBIT	10,00,000	19,50,000

Statement of EPS

Particulars	Existing	Alternative – 1	Alternative – 2	Alternative – 3
EBIT	10,00,000	19,50,000	19,50,000	19,50,000
Less: Interest	-	50,000 (5,00,000 × 10%)	1,25,000 [(5lakh × 10%) + (5lakh × 15%)]	[(5lakh × 10%) + (5lakh × 15%) + (4lakh × 20%)]
EBT	10,00,000	19,00,000	18,25,000	16,95,000
Less: Tax @ 40%	4,00,000	7,60,000	7,30,000	6,78,000
EAT / EAE (A)	6,00,000	11,40,000	10,95,000	10,17,000
No. of Equity Shares				
- Existing	1,00,000	1,00,000	1,00,000	1,00,000
- New	-	$\frac{15,00,000}{200} = 7,500$	$\frac{10,00,000}{200} = 5,000$	$\frac{6,00,000}{200} = 3,000$
Total Equity Shares (B)		1,07,500	1,05,000	1,03,000
EPS (A ÷ B)	6.00	10.60	10.43	9.87

Since, Alternative – 1 has highest EPS, thus it is recommended to raise funds in combination of debt of ₹ 5,00,000 and balance ₹ 15,00,000 from equity.

Question – 2

Earnings before interest and tax of a company are ₹ 4,50,000. Currently the company has 80,000 Equity shares of ₹ 10 each, retained earnings of ₹ 12,00,000. It pays annual interest of ₹ 1,20,000 on 12% Debentures. The company proposes to take up an expansion scheme for which it needs additional fund of ₹ 6,00,000. It is anticipated that after expansion, the company will be able to achieve the same return on investment as at present. It can raise fund either through debts at rate of 12% p.a. or by issuing Equity shares at par. Tax rate is 40%.

Required to compute the earning per share if:

(i) The additional funds were raised through debts.

(ii) The additional funds were raised by issue of Equity shares.

Advise whether the company should go for expansion plan and which sources of finance should be preferred.

Solution

Existing capital employed = Equity + Retained Earnings + Debentures

= (80,000 × 10) + 12,00,000 + (1,20,000 ÷ 12%) = ₹ 30,00,000

Capital employed after expansion = 30,00,000 + 6,00,000 = ₹ 36,00,000

New EBIT = $\frac{Existing\ EBIT}{Existing\ Capital} \times New\ Capital = \frac{4,50,000}{30,00,000} \times 36,00,000$ = ₹ 5,40,000

Statement of EPS

Particulars	Existing	Additional fund as debt	Additional fund as equity
EBIT	4,50,000	5,40,000	5,40,000
Less: Interest			

- Existing Debt	1,20,000	1,20,000	1,20,000
- New Debt	-	72,000	-
EBT	3,30,000	3,48,000	4,20,000
Less: Tax @ 40%	1,32,000	1,39,200	1,68,000
EAT/EAE (A)	1,98,000	2,08,800	2,52,000
No. of Equity shares (B)	80,000	80,000	1,40,000
EPS (A ÷ B)	2.475	2.610	1.800

EPS is higher when the additional funds are raised through debt, thus it is the recommended option for the company.

Question – 3

Akash Limited provides you the following information:

	Amount (₹)
Profit (EBIT)	2,80,000
Less: Interest on Debentures @ 10%	(40,000)
EBT	2,40,000
Less: Income Tax @ 50%	(1,20,000)
	1,20,000
No. of Equity shares (₹ 10 each)	30,000
Earnings per share (EPS)	4
Price /EPS – (PE Ratio)	10

The company has reserves and surplus of ₹ 7,00,000 and required ₹ 4,00,000 further for modernization. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest rate on additional debts to 12%. You are required to ASCERTAIN the probable price of the share.

(a) if the additional capital is raised as debt; and

(b) if the amount is raised by issuing equity shares at ruling market price.

Solution

Statement of MPS

Particulars	Debt Option (₹)	Equity Option (₹)
EBIT	3,60,000	3,60,000
Less: Interest on old deb.	40,000	40,000
Less: Interest on new debt (4,00,000 × 12%)	48,000	-
EBT	2,72,000	3,20,000
Less: Taxes @ 50%	1,36,000	1,60,000
EAT/EAE	1,36,000	1,60,000
Number of equity shares	30,000	40,000
Earning per share (EPS)	4.53	4.00
PE Ratio	8	10
Market Price Per Share (EPS × PE Ratio)	36.24	40

Option II of raising funds with equity is better.

Working Note:

1) Existing capital = Equity + 10% Debentures + Reserve & Surplus
= (30,000×10) + (40,000 ÷ 10%) + 7,00,000 = ₹ 14,00,000

Rate of present earnings = $\frac{2,80,000}{14,00,000} \times 100 = 20\%$

New capital employed = 14,00,000 + 4,00,000 = ₹ 18,00,000

New EBIT = 18,00,000 × 20% = ₹ 3,60,000

2) **Option I**

Debt Equity Ratio = $\frac{Debt}{Debt+Equity} = \frac{4,00,000+4,00,000}{18,00,000} \times 100 = 44.44\%$

Since Debt Equity Ratio is more than 40%, thus PE ratio will be down to 8.

Option II

Debt Equity Ratio = $\frac{Debt}{Debt+Equity} = \frac{4,00,000}{18,00,000} \times 100 = 22.22\%$

Since Debt Equity Ratio is less than 40%, thus PE ratio will remain same at 10.

Question – 4

J Ltd. is considering three financial plans. The key information is as follows:

(i) Total investment to be raised ₹ 4,00,000.

(ii) Plans of Financing

Plans	Equity	Debt	Preference Shares
X	100% (4L)	-	-
Y	50% (2L)	50% (2L)	-
Z	50% (2L)	-	50% (2L)

(iii) Cost of Debt – 10%
Cost of preference shares – 10%

(iv) Tax rate is 50%

(v) Equity shares of the face value of ₹ 10 each will be issued at a premium of ₹ 10 per share → IP = 10+10 = 20

(vi) Expected EBIT is ₹ 1,00,000

You are required to compute the following for each plan:

(a) Earnings per share (EPS)

(b) Financial break-even point

(c) Indifference Point between the plans and indicate if any of the plans dominate.

Solution

(a) **Computation of Earnings Per Share (EPS)**

Particulars	Plan X	Plan Y	Plan Z
EBIT	1,00,000	1,00,000	1,00,000
Less: Interest on debt	-	20,000	-
EBT	1,00,000	80,000	1,00,000
Less: Tax @ 50%	50,000	40,000	50,000
EAT	50,000	40,000	50,000
Less: Preference Dividend	-	-	20,000
EAE (A)	50,000	40,000	30,000

No. of equity shares (B)	20,000	10,000	10,000
EPS (A ÷ B)	2.50	4.00	3.00

(b) **Computation of Financial Break-even Point**

Plan X – Financial BEP = Interest + $\frac{Preference\ Dividend}{(1-t)}$ = 0 + 0 = ₹ 0

Plan Y – Financial BEP = Interest + $\frac{Preference\ Dividend}{(1-t)}$ = 20,000 + 0 = ₹ 20,000

Plan Z – Financial BEP = Interest + $\frac{Preference\ Dividend}{(1-t)}$ = 0 + $\frac{20,000}{(1-0.50)}$ = ₹ 40,000

(c) **Indifference point**

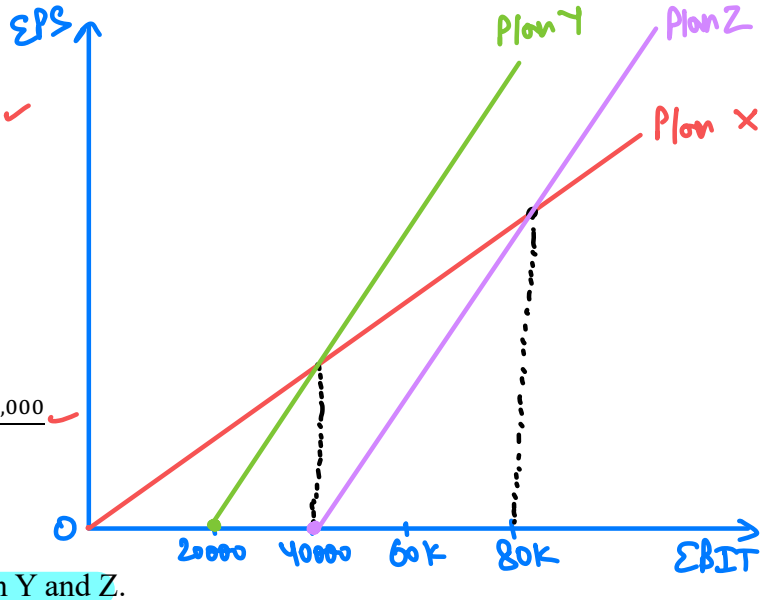
Between Plan X and Y

$\frac{(EBIT-0)(1-0.50)-0}{20,000} = \frac{(EBIT-20,000)(1-0.50)-0}{10,000}$

$\frac{0.5(EBIT)}{20,000} = \frac{0.5(EBIT-20,000)}{10,000}$

EBIT = 2(EBIT) – 40,000

EBIT = ₹ 40,000



Between Plan Y and Z

$\frac{(EBIT-20,000)(1-0.50)-0}{10,000} = \frac{(EBIT-0)(1-0.50)-20,000}{10,000}$

$\frac{0.5(EBIT-20,000)}{10,000} = \frac{0.5(EBIT)-20,000}{10,000}$

0.5(EBIT) – 10,000 = 0.5(EBIT) – 20,000

There is no indifference point between Plan Y and Z.

Between Plan X and Z

$\frac{(EBIT-0)(1-0.50)-0}{20,000} = \frac{(EBIT-0)(1-0.50)-20,000}{10,000}$

$\frac{0.5(EBIT)}{20,000} = \frac{0.5(EBIT)-20,000}{10,000}$

0.5(EBIT) = EBIT – 40,000

EBIT = ₹ 80,000

The above indifference levels are presented in the following table:

Expected Level of EBIT	Recommended plan
Less than ₹ 40,000	Plan X
Equal to ₹ 40,000	Plan X or Plan Y
Between ₹ 40,000 to ₹ 80,000	Plan Y
More than ₹ 80,000	Plan Y

From the above table, it can be clearly observed that Plan Y is more dominating than other plans.

Question – 5

XYZ Ltd. is considering the following two alternative financing plans:

Particulars	Plan A	Plan B
Equity Shares of ₹ 10 each	8,00,000	8,00,000

12% Debentures	4,00,000	-
Preference shares of ₹ 100 each	-	4,00,000
	12,00,000	12,00,000

The indifference point between the plans is ₹ 4,80,000. Corporate tax rate is 30%. Calculate the rate of dividend on preference shares.

Solution

At indifference level i.e. when EBIT = ₹ 4,80,000

EPS of Plan A = EPS of Plan B

$$\frac{(EBIT-interest)(1-t)}{No.of\ equity\ shares} = \frac{(EBIT-interest)(1-t)-PD}{No.of\ equity\ shares}$$

$$\frac{(4,80,000-48,000)(1-0.30)}{80,000} = \frac{(4,80,000-0)(1-0.30)-PD}{80,000}$$

3,02,400 = 3,36,000 – PD

PD = ₹ 33,600

Rate of preference dividend = $\frac{PD}{Pref.\ sh.\ capital} \times 100 = \frac{33,600}{4,00,000} \times 100 = 8.40\%$

Question – 6

A Limited and B Limited are identical except for capital structures. A Ltd. has 60% debt and 40% equity, whereas B Ltd. has 20% debt and 80% equity. (All percentages are in market-value terms). The borrowing rate for both companies is 8% in a no-tax world, and capital markets are assumed to be perfect.

(a) (i) If X owns 3% of the equity shares of A Ltd. determine his return if the company has net operating income of ₹ 4,50,000 and the overall capitalization rate of the company, (Ko) is 18%.

(ii) Calculate the implied required rate of return on equity of A Ltd.

(b) B Ltd. has the same net operating income as A Ltd.

(i) Calculate the implied required equity return of B Ltd.

(ii) Analyze why does it differ from that of A Ltd.

Solution

(a) (i) Value of A Ltd. = $\frac{EBIT}{Ko} = \frac{4,50,000}{18\%}$ = ₹ 25,00,000

Value of Debt = ₹ 25,00,000 × 60% = ₹ 15,00,000

Value of Equity = ₹ 25,00,000 × 40% = ₹ 10,00,000

Income Statement

EBIT	4,50,000
Less: Interest (15,00,000 × 8%)	1,20,000
EBT / EAT / EAE	3,30,000

Return on 3% shares of Mr. X = ₹ 3,30,000 × 3% = ₹ 9,900

(ii) Implied rate of return on equity = $\frac{EAE}{Value\ of\ equity} \times 100 = \frac{3,30,000}{10,00,000} \times 100 = 33\%$

(b) (i) Value of B Ltd. = $\frac{EBIT}{Ke} = \frac{4,50,000}{18\%}$ = ₹ 25,00,000

Value of debt = ₹ 25,00,000 × 20% = ₹ 5,00,000

Value of equity = ₹ 25,00,000 × 80% = ₹ 20,00,000

Income Statement

	EBIT	4,50,000
Less:	Interest (5,00,000 × 8%)	40,000
	EBT / EAT / EAE	4,10,000

Implied rate of return on equity = $\frac{EAE}{Value\ of\ equity} \times 100 = \frac{4,10,000}{20,00,000} \times 100$ = 20.50%

(ii) It is lower than the A Ltd. because B Ltd. uses less debt in its capital structure. As the equity capitalization is a linear function of the debt-to-equity ratio when we use the net operating income approach, the decline in required equity return offsets exactly the disadvantage of not employing so much in the way of "cheaper" debt funds.

Question – 7

SK Ltd. has a total capitalization of ₹ 10,00,000. The financial manager of the firm wants to take a decision regarding the capital structure. After a study of the capital market, he gathers the following data:

Amount of Debt ₹	Interest Rate %	Equity Capitalization Rate (at given level of debt) %
0	-	10.0
1,00,000	4.0	10.5
2,00,000	4.0	11.0
3,00,000	4.5	11.6
4,00,000	5.0	12.4
5,00,000	5.5	13.5
6,00,000	6.0	16.0

(a) What amount of debt should be employed by the firm if the traditional approach is held valid (and that the firm always maintains its capital structure at book values)?

(b) If the Modigliani-Millar approach is followed, what should be the equity capitalization rate?

Solution

Value of Debt	Value of Equity	Weight of Debt (Wd)	Weight of Equity (We)	Kd	Ke	Part (a) Ko*	Part (b) Kel**
0	10,00,000	0	1	-	10.0	(0×0) + (1×10) = 10.0	10 + (10 – 0)(0÷1) = 10

1,00,000	9,00,000	0.10	0.90	4.0	10.5	(0.1×4) + (0.9×10.5) = 9.85	10 + (10 – 4)(0.1÷0.9) = 10.67
2,00,000	8,000,000	0.20	0.80	4.0	11.0	(0.2×4) + (0.8×11) = 9.6	10 + (10 – 4)(0.2÷0.8) = 11.5
3,00,000	7,00,000	0.30	0.70	4.5	11.6	(0.3×4.5) + (0.7×11.6) = 9.47	10 + (10 – 4.5)(0.3÷0.7) = 12.36
4,00,000	6,00,000	0.40	0.60	5.0	12.4	(0.4×5) + (0.6×12.4) = 9.44	10 + (10 – 5)(0.4÷0.6) = 13.33
5,00,000	5,00,000	0.50	0.50	5.5	13.5	(0.5×5.5) + (0.5×13.5) = 9.5	10 + (10 – 5.5)(0.5÷0.5) = 14.5
6,00,000	4,00,000	0.60	0.40	6.0	16.0	(0.6×6) + (0.4×16) = 10.0	10 + (10 – 6)(0.6÷0.4) = 16

*Ko = (Wd×Kd) + (We×Ke)

**Kel = Keu + (Keu – Kd)(Wd÷We)

As per the traditional approach, the optimal debt equity mix will be at the level at which overall cost of capital (Ko) is minimum which is achieved when company employs debt of ₹ 4,00,000 and equity of ₹ 6,00,000.

Question – 8

The following data relate to two companies belonging to the same risk class:

Particulars	A Ltd.	B Ltd.
Expected Net Operating Income	₹ 18,00,000	₹ 18,00,000
12% Debt	₹ 54,00,000	-
Equity Capitalization Rate	-	18%

Required:

(a) Determine the total market value, equity capitalization rate and weighted average cost of capital for each company assuming no taxes as per MM approach

(b) Determine the total market value, equity capitalization rate and weighted average cost of capital for each company assuming 40% taxes as per MM approach.

Solution

(c) Value of B Ltd. (Unlevered firm) = $\frac{EBIT}{Ke} = \frac{18,00,000}{18\%}$ = ₹ 1,00,00,000

Value of A Ltd. (Levered firm) = Value of B Ltd. + Tax benefit

= 1,00,00,000 + (54,00,000 × 0) = ₹ 1,00,00,000

Ke of B Ltd. = 18% (given)

Ke of A Ltd. = $\frac{EBIT - Interest}{Value\ fo\ Equity} = \frac{18,00,000 - (54,00,000 \times 12\%)}{1,00,00,000 - 54,00,000} = \frac{11,52,000}{46,00,000} = 0.2504 = 25.04\%$

WACC of B Ltd. = Ke = 18%

WACC of A Ltd.

Source (1)	*Amount* (2)	*Weights* (3)	*Cost of capital* (4)	*Weighted Average Cost* (5)= (3)x(4)
Equity	*46,00,000*	*0.46*	*25.04*	*11.52*
Debt	*54,00,000*	*0.54*	*12.00*	*6.48*
		1		*18*

Weighted Average Cost of Capital (WACC) = 18%

(d) Value of B Ltd. (Unlevered firm) = $\frac{EBIT(1-t)}{Ke} = \frac{18,00,000(1-0.40)}{18\%} =$ ₹ 60,00,000

Value of A Ltd. (Levered firm) = Value of B Ltd. + Tax benefit

= 60,00,000 + (54,00,000 × 0.40) = ₹ 81,60,000

Ke of B Ltd. = 18% (given)

Ke of A Ltd. = $\frac{(EBIT - Interest)(1-t)}{Value\ fo\ Equity} = \frac{[18,00,000 - (54,00,000 \times 12\%)](1-0.40)}{81,60,000 - 54,00,000} = \frac{6,91,200}{27,60,000} = 25.04\%$

WACC of B Ltd. = Ke = 18%

Kd of A LTd. = I × (1 – t) = 12 × (1 – 0.40) = 7.20%

WACC of A Ltd.

Source (1)	*Amount* (2)	*Weights* (3)	*Cost of capital* (4)	*Weighted Average Cost* (5)= (3)x(4)
Equity	*27,60,000*	*0.34*	*25.04*	*8.51*
Debt	*54,00,000*	*0.66*	*7.20*	*4.75*
		1		*13.26*

Weighted Average Cost of Capital (WACC) = 13.26%

Question – 9

Rounak Ltd. is an all equity financed company with a market value of ₹ 25,00,000 and cost of equity (Ke) 21%. The company wants to buyback equity shares worth ₹ 5,00,000 by issuing and raising 15% perpetual debt of the same amount. Rate of tax may be taken as 30%. After the capital restructuring and applying MM model (with taxes), you are required to COMPUTE:

(a) Market value of the company

(b) Cost of equity

(c) Weighted average cost of capital (using market weights) and comment on it.

Solution

Working Note:

Market value of equity = $\frac{Net\ Income\ (NI) for\ Equity\ Holders}{Ke}$

₹ 25,00,000 = $\frac{Net\ Income\ (NI) for\ Equity\ Holders}{0.21}$

Net Income for Equity Holders = 25,00,000 × 0.21 = ₹ 5,25,000

EBIT = $\frac{5,25,000}{1-0.30}$ = ₹ 7,50,000

(₹ in lakhs)

Particulars	All Equity	Debt and Equity
EBIT	7,50,000	7,50,000
(-) Interest	-	(75,000)
EBT	7,50,000	6,75,000
(-) Tax @ 30%	2,25,000	2,02,500
Income to shareholders	5,25,000	4,72,500

(a) Market value of company = Value of equity + Value of debt

= ₹ 25,00,000 + (5,00,000 × 0.30) = ₹ 26,50,000

The impact is that the market value of the company has increased by ₹ 1,50,000.

(b) Ke = $\frac{Net\ income\ to\ equity\ holders}{Equity\ value}$ = $\frac{4,72,500}{26,50,000-5,00,000}$ = 0.219 = 21.98%

(c) Kd = I × (1 – t) = 15% × (1 – 0.30) = 10.5%

Weighted Average Cost of Capital (WACC)

Source (1)	*Amount (2)*	*Weights (3)*	*Cost of capital (4)*	*Weighted Average Cost (5)= (3)x(4)*
Equity	*21,50,000*	*0.81*	*21.98*	*17.80*
Debt	*5,00,000*	*0.19*	*10.50*	*2.00*
	26,50,000	*1*		*19.80*

Weighted Average Cost of Capital (WACC) = 19.80%

The impact is that WACC has fallen by 1.20% due to benefit of lower cost of capital of debt.

Question - 10

Company P and Q are identical in all respects including risk factors except for debt/equity, company P having issued 10% debentures of ₹ 18 lakhs while company Q is unlevered. Both the companies earn 20% before interest and taxes on their total assets of ₹ 30 lakhs.

Assuming a tax rate of 50% and capitalization rate of 15% from an all-equity company.

Required to calculate the value of companies P and Q using (a) Net Income Approach and (b) net Operating Income Approach.

Solution

(a) Valuation under Net Income Approach

Particulars	P (₹)	Q (₹)
EBIT (30,00,000×20%)	6,00,000	6,00,000
Less: Interest (18,00,000×10%)	1,80,000	-
EBT	4,20,000	6,00,000
Less: Tax @ 50%	2,10,000	3,00,000
EAT/EAE	2,10,000	3,00,000
Value of Equity (Ve = EAE÷15%)	14,00,000	20,00,000
Add: Total value of debt (Vd)	18,00,000	-
Total value of company (Ve+Vd)	32,00,000	20,00,000

(b) Valuation under Net Operating Income Approach

Value of Firm Q (unlevered) = $\frac{EBIT(1-t)}{Ke} = \frac{6,00,000\times(1-0.50)}{15\%}$ = ₹ 20,00,000

Value of Firm P (levered) = Value of unlevered firm + (Debt × Tax rate)

= 20,00,000 + (18,00,000×50%) = ₹ 29,00,000

Question – 11

The following is the data regarding two companies S and K belonging to the same risk class:

	Company S	Company K
Number of ordinary shares	90,000	1,50,000
Market price per share (₹)	1.20	1.00
6% Debentures (₹)	60,000	--
Profit before interest (₹)	18,000	18,000

All profits after debenture interest are distributed as dividends. Explain how under Modigliani & Miller approach, an investor holding 10% shares in company S will be better off in switching his holding to Company K.

Solution

Particulars	Company S	Company K
Value of Equity	90,000×1.20 = 1,08,000	1,50,000×1 = 1,50,000
Value of Debt	60,000	-
Total value of Firm	1,68,000	1,50,000

Value of levered company S is more than unlevered company therefore investor will sell his shares in Company S and buy shares of Company K. To maintain the risk level i.e. Debt & equity ratio, he will borrow proportionate amount and invest that in shares of company K.

	Co. S	Co. K
EBIT	18000	18000
(-) Int.	(3600)	-
EBT/EAT/EAE	14,400	18000

Investment & Borrowings:

Sell value from shares of Company S (1,08,000 × 10%)	₹ 10,800
Borrow money (60,000 × 10%)	₹ 6,000
Buy shares of Company K	₹ 16,800

Earning of Investor

Income from shares of Company K $\left(\frac{18,000}{1,50,000} \times 16,800\right)$	₹ 2,016
Less: Interest on loan (6,000 × 6%)	₹ 360
Net income from Company K	₹ 1,656
Less: Income from Company S (~~12,000~~ 14400 × 10%)	₹ 1,440
Incremental gain due to arbitrage	₹ 216

Question – 12

The following data relate to two companies belonging to the same risk class:

Particulars	S Ltd.	K Ltd.
Expected Net Operating Income	₹ 2,40,000	₹ 2,40,000
10% Debt	₹ 7,20,000	-
Equity Capitalization Rate	20%	15%

Required:

(a) Determine the total value and the weighted average cost of capital for each company assuming no taxes before the start of arbitrage process.

(b) Show the arbitrage process by which an investor who holds 10% equity share in K Ltd. will be benefited by investing in S Ltd.

(c) When will this arbitrage process come to an end?

Solution

(a) Statement of calculation of value of firm

Particulars	Company S	Company K
EBIT	2,40,000	2,40,000
(-) Interest	72,000	-
EBT	1,68,000	2,40,000
Ke	20%	15%
Ve	$\frac{1,68,000}{20\%}$ = 8,40,000	$\frac{2,40,000}{15\%}$ = 16,00,000
Vd	7,20,000	-
Vf	15,60,000	16,00,000

Ko	$\frac{2,40,000}{15,60,000} \times 100 = 15.385\%$	$\frac{2,40,000}{16,00,000} \times 100 = 15\%$

(b) Value of Company K (unlevered) is more than of Company S (Levered). Thus, investor will sell shares in Company K and buy shares of Company S. To maintain the level of risk i.e. Debt and Equity ratio(7.2 : 8.4), he will lend proportionate amount and invest balance amount in shares of company K.

Investment & Borrowings:

Sale value from shares of Company K (16,00,000 × 10%)	₹ 1,60,000
Lend money [1,60,000 × (7.2 ÷ 15.6)]	₹ 73,846
Buy shares of Company S [1,60,000 × (8.4 ÷ 15.6)]	₹ 86,154
	₹ 1,60,000

Earning of Investor

Income from shares of Company S $\left(\frac{1,68,000}{8,40,000} \times 86,154\right)$	₹ 17,231
Add: Interest from loan given (73,846 × 10%)	₹ 7,385
Net income from Company S	₹ 24,616
Less: Income from Company K (2,40,000 × 10%)	₹ 24,000
Incremental gain due to arbitrage	₹ 616

(d) The arbitrage process will come to an end when the value of both firms i.e. S and K becomes equal.

Capital Structure

MCQs

Q(1). The assumptions of MM hypothesis of capital structure do not include the following:
A. Capital markets are imperfect
B. Investors have homogenous expectations
C. All firms can be classified into homogenous risk classes
D. The dividend-payout ratio is cent percent, and there is no corporate tax

Q(2). Which of the following is irrelevant for optimal capital structure?
A. Flexibility
B. Solvency
C. Liquidity
D. Control

Q(3). Financial structure refers to:
A. All financial resources
B. Short-term funds
C. Long-term funds
D. None of these

Q(4). An EBIT-EPS indifference analysis chart is used for:
A. Evaluating the effects of business risk on EPS
B. Examining EPS results for alternative financial plans at varying EBIT levels
C. Determining the impact of a change in sales on EBIT
D. Showing the changes in EPS quality over time

Q(5). The term "capital structure" means:
A. Long-term debt, preferred stock and equity shares
B. Current assets and current liabilities
C. Net working capital
D. Shareholder's equity

Q(6). The cost of monitoring management is considered to be a (an):
A. Bankruptcy cost
B. Transaction cost
C. Agency cost
D. Institutional cost

Q(7). The traditional approach towards the valuation of a firm assumes:
A. That the overall capitalization rate changes in financial leverage
B. That there is an optimum capital structure
C. That the total risk is not changed with the changes in the capital structure
D. That the markets are prefect

Q(8). Market values are often used in computing the weighted average cost of capital because:
A. This is the simplest way to do the calculation
B. This is consistent with the goal of maximizing shareholder value
C. This is required by SEBI
D. This is a very common mistake

Q(9). A firm's optimal capital structure:
A. Is the debt-equity ratio that results in the minimum possible weighted average cost of capital
B. 40 percent debt and 60 percent equity
C. When the debt-equity ratio is 0.50
D. When cost of equity is minimum

Q(10). Capital structure of a firm influences the:
A. Risk
B. Return
C. Both risk and return
D. Return but not risk

Q(11). Consider the below mentioned statements:

1. A company is considered to be over-capitalised when its actual capitalisation is lower than the proper capitalisation as warranted by the earning capacity.
2. Both over-capitalisation and under-capitalisation are determined to the interest of the society.

State True or False:

A. 1–True, 2-False
B. 1-False, 2-True
C. 1-False, 2-False
D. 1-True, 2-True

Q(12). A critical assumption of the Net Operating Income (NOI) approach to valuation is:

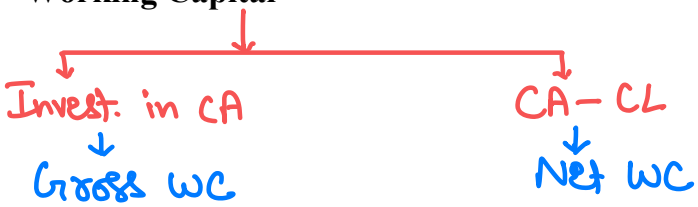
A. That debt and equity levels remain unchanged
B. That dividends increase at a constant rate
C. That Ko remains constant regardless of change in leverage
D. That interest expenses and taxes are included in the calculation

Q(13). Which of the following steps may be adopted to avoid the negative consequences of over-capitalisation?

A. The shares of the company should be split up. This will reduce dividend per share, though EPS shall remain unchanged
B. Issue of bonus shares
C. Revising upward the par value of shares in exchange of the existing shares held by them
D. Reduction in claims of debenture-holders and creditors

WORKING CAPITAL MANAGEMENT - CONCEPTS

1. Working Capital



2. Working Capital

3. How to Finance WC

(Risk Averse) (Risk Taker)

	Conservative	Moderate	Aggressive
Permanent WC	Long term	Long term	LT + ST
Temporary WC	LT + ST	Short term	Short term
Liquidity	High	Average	Low
Profitability	Low	Average	High

4. Estimation of Working Capital

(A) Component wise i.e. by preparing statement of WC estimation

(B) Operating cycle method

5. Statement of WC Estimation

Particulars	Amount
Raw material Stock [Annual RM Cons. / 365/52/12 × RM Stock Period]	✓
WIP Stock {[Annual RM Cons. / 365/52/12 × DOC × WIP Pd.} + {[Conversion Cost / 365/52/12 × DOC × WIP Pd.]}	✓
Finished goods stock [COGS / 365/52/12 × FG Stock Period]	✓
Debtors [Credit COS / 365/52/12 × Debtors Period]	✓
Prepaid expenses [Expenses / 365/52/12 × Prepaid Period]	✓
Cash & Bank balance [Generally given in Ques.]	✓
Total Current Assets (A)	✓
Creditors for Material [Credit Purchases / 365/52/12 × Creditors Period]	✓
Outstanding expenses [Expenses / 365/52/12 × Outstanding Period] (Or Creditors for Exp.)	✓
Total Current Liabilities (B)	✓
Working Capital (A – B)	✓
Add: Safety Margin @ __ %	✓ Add
Net Working Capital	✓

6. Points to Remember (PTRs)

- If Degree of Completion (DOC) of WIP is not given then assume to be at 100% for Material and 50% for conversion cost.

- Conversion cost = Direct labour + Direct expenses + Factory overheads

7. **Cash Cost of WC** → Find if specifically asked in Ques.

- Do not consider non-cash expenses e.g. depreciation while preparing income statement.
- Do not consider non-cash expenses for calculation of items of WC.

8. **Existing Business Vs New Business**

we assume that op. & cl. Stock will be equal → Don't show them in income statement

In this case, Op. Stock = NIL but closing stock will be there → Show closing stock in income statement.

9. **Effect of Double Shift on Working Capital**

- WIP stock will remain same
- Fixed cost will not change but to be adjusted for price effect.
- Units will get double due to which all dependent elements on units will get double.

10. **Maximum Permissible Bank Finance (MPBF)** (Or) Tandon Comittee Norms

Norm – 1) MPBF = 75%(CA – CL)

Norm – 2) MPBF = (75% × CA) – CL

Norm – 3) MPBF = [75% × (CA – Hard core CA)] – CL

Note – Existing bank finance if any should be excluded from CL.

Annual op. Cost / 365/52/12 × op. cycle pd.

Cash → RM Purch. → RM Stock → WIP → FG → Debtors → Cash

11. Operating Cycle Method

$$\text{Amount of Working capital} = \frac{\textit{Annual operating cost}}{\textit{No. of operating cycles}}$$

$$\text{Number of operating cycles} = \frac{365}{\textit{Operating cycle period}}$$

12. Statement of Operating Cycle

Particulars	Days
Raw material period $\left[\frac{\textit{Average RM stock}}{\textit{RM Consumption per day}} \textit{ or } \frac{\textit{Average RM stock}}{\textit{Annual RM Consumption}} \times 365\right]$	
WIP Period $\left[\frac{\textit{Average WIP stock}}{\textit{Annual Cost of Production}} \times 365/52/12\right]$	
Finished goods period $\left[\frac{\textit{Average FG stock}}{\textit{Annual Cost of Goods Sold}} \times 365/52/12\right]$	
Receivables collection period $\left[\frac{\textit{Average Receivables}}{\textit{Annual Credit Sales}} \times 365/52/12\right]$	
Gross Operating Cycle	
(-) Creditors payment period $\left[\frac{\textit{Average Creditors}}{\textit{Annual Credit RM Purchases}} \times 365/52/12\right]$	
Net Operating Cycle	

Debtors

- St. of WC Estimation
  - word used is Debtors → on Credit Sales
  - word used is investment in Debtors → on Credit COS
- Net operating Cycle → Generally used word is Debtors → on Credit Sales

WORKING CAPITAL MANAGEMENT - CONCEPTS

Question – 1

SK Ltd. sells goods at a gross profit of 20%. It includes depreciation as part of cost of production. The following figures for the 12 months period ending 31st Dec. 2020 are given to enable you to ascertain the requirements of working capital of the company on a cash cost basis. In your workings, you are required to assume that:

(a) a safety margin of 15% will be maintained

(b) cash is to be held to the extent of 50% of current liabilities

(c) there will be no work-in-progress

(d) tax is to be ignored

Stocks of raw materials and finished goods are kept at one month's requirements

All working notes are to form part of your answer.

	₹
Sales – at 2 months credit	27,00,000
Materials consumed (suppliers credit is for 2 months)	6,75,000
Wages (paid at the beginning of the next month)	5,40,000
Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)	60,000
Administrative expenses (paid as above)	1,80,000
Sales promotion expenses – paid quarterly and in advance	90,000

Solution

Working note:

Statement of cost of sales

Particulars	Amount
Raw material	6,75,000
Wages	5,40,000
Manufacturing expenses (60,000 × 12)	7,20,000
COP/COGS	19,35,000
Administrative expenses	1,80,000
Sales promotion expenses	90,000
Cost of sales (COS)	22,05,000

Statement showing Working Capital Requirements

Current Assets in terms of Cash Cost	Amount (₹)
Stock of Raw Material (6,75,000 x 1/12)	56,250
Stock of Finished Goods (19,35,000 × 1/12)	1,61,250

Debtors (22,05,000 × 2/12)	3,67,500
Prepaid sales promotion expenses (90,000 × 3/12)	22,500
Cash at Bank and in hand (50% × 2,32,500)	1,16,250
Total Current Assets (A)	**7,23,750**
Current Liabilities in terms of Cash cost	
Creditors for Material (6,75,000 × 2/12)	1,12,500
Creditors for Wages (5,40,000 × 1/12)	45,000
Creditors for Manufacturing Expenses (7,20,000 × 1/12)	60,000
Creditors for Administrative Expenses (1,80,000 × 1/12)	15,000
Total Current Liabilities (B)	**2,32,500**
Net Current Assets (A - B)	4,91,250
Add: 15% margin for contingencies	73,688
Required working capital	**5,64,938**

Question – 2

While applying for financing of working capital requirements to a commercial bank, SK Ltd. projected the following information for the next year.

Cost Element	Per unit (₹)	Per unit (₹)
Raw Materials		
X	30	
Y	7	
Z	6	43
Direct Labour		25
Manufacturing and administration overheads (excluding depreciation)		20
Depreciation		10
Selling overheads		15
		113

Additional Information:

(a) Raw materials are purchased from different suppliers leading to different period allowed as follows:
X – 2 months; Y – 1 months; Z – ½ month

(b) Production cycle is of ½ month. Production process requires full unit of X and Y in the beginning of the production. Z is required only to the extent of half unit in the beginning and the remaining half unit is needed at a uniform rate during the production process.

(c) X is required to be stored for 2 months and other materials for 1 month.

(d) Finished goods are held for 1 month.

(e) 25% of the total sales is on cash basis and remaining on credit basis. The credit allowed by debtors is 2 months.

(f) Average time lag in payment of all overheads is 1 months and ½ months for direct labour.

(g) Minimum cash balance of ₹ 8,00,000 is to be maintained.

Calculate the estimated working capital required by the company on cash cost basis if the budgeted level of activity is 1,50,000 units for the next year. The company also intends to increase the estimated working capital requirement by 10% to meet the contingencies. (You may assume that production carried on evenly throughout the year and direct labour and other overheads accrue similarly.)

Solution

Statement showing Working Capital Requirements of

Current Assets	**Amount (₹)**
Stock of raw material X (45,00,000 × 2/12)	7,50,000
Stock of raw material Y (10,50,000 × 1/12)	87,500
Stock of raw material Z (9,00,000 × 1/12)	75,000
Stock of work-in-progress (working note – 2)	4,00,000
Stock of finished goods (1,32,00,000 × 1/12)	11,00,000
Debtors for credit sale (1,54,50,000 × 75% × 2/12)	19,31,250
Cash	8,00,000
Total Current Assets (A)	**51,43,750**
Current Liabilities	
Creditors for raw material X (45,00,000 × 2/12)	7,50,000
Creditors for raw material Y (10,50,000 × 1/12)	87,500
Creditors for raw material Z (9,00,000 × 0.5/12)	37,500
Outstanding direct labour (37,50,000 × 0.5/12)	1,56,250
Outstanding manufacturing & administration overheads (30,00,000 × 1/12)	2,50,000
Outstanding selling overheads (22,50,000 × 1/12)	1,87,500
Total Current Liabilities (B)	**14,68,750**
Net working capital (A – B)	**36,75,000**
Add: Provision for Contingencies @ 10%	3,67,500
Working capital requirement	**40,42,500**

Working Note-1

Statement of Cost

Particulars	**₹**
Raw material X (1,50,000 × 30)	45,00,000
Raw material Y (1,50,000 × 7)	10,50,000
Raw material Z (1,50,000 × 6)	9,00,000
Raw material consumed	64,50,000
Add: Direct labour (1,50,000 × 25)	37,50,000
Add: Manufacturing & Administration overheads (1,50,000 × 20)	30,00,000
Cash GFC/NFC/COP/COGS	1,32,00,000
Add: Selling overheads (1,50,000 × 15)	22,50,000
Cash cost of sales	1,54,50,000

Working Note-2

Statement of calculation of WIP

Particulars	₹
Raw material X (45,00,000 × 0.5/12)	1,87,500
Raw material Y (10,50,000 × 0.5/12)	43,750
Raw material Z (9,00,000 × 50% × 0.5/12)	18,750
Raw material usage	2,50,000
Add: Raw material Z (9,00,000 × 50% × 50% × 0.5/12)	9,375
Add: Direct labour (37,50,000 × 50% × 0.5/12)	78,125
Add: Manufacturing & Administration overheads (30,00,000 × 50% × 0.5/12)	62,500
Work in progress stock	4,00,000

Question – 3

The management of SK Ltd. is planning to expand its business and consults you to prepare an estimated working capital statement. The records of the company reveal the following annual information:

	(₹)
Sales – Domestic at one month's credit	18,00,000
Export at three month's credit (sale price 10% below domestic price)	8,10,000
Materials used (suppliers extend two months credit)	6,75,000
Lag in payment of wages – ½ month	5,40,000
Lag in payment of manufacturing expenses (cash) – 1 month	7,65,000
Lag in payment of administration expenses – 1 month	1,80,000
Selling expenses payable quarterly in advance	1,12,500
Income tax payable in four instalments of which one falls in the next financial year	1,68,000

Rate of gross profit is 20%. Ignore work-in-progress and depreciation. The company keeps one month's stock of raw materials and finished goods (each) and believes in keeping ₹ 2,50,000 available to it including the overdraft limit of ₹ 75,000 not yet utilized by the company.

The management is also of the opinion to make 10% margin for contingencies on computed figures. You are required to prepare the estimated working capital statement for the next year.

Solution

Statement of Working Capital Estimation

Particulars	Amount
Raw material stock (6,75,000 × 1/12)	56,250
Finished goods stock (21,60,000 × 1/12)	1,80,000
Domestic sales debtors (15,17,586 × 1/12)	1,26,466
Export sales debtors (7,54,914 × 3/12)	1,88,729
Prepaid selling expenses (1,12,500 × 3/12)	28,125
Cash and bank	1,75,000
Total CA (A)	7,54,570

Creditors for material (6,75,000 × 2/12)	1,12,500
Outstanding wages (5,40,000 × 0.5/12)	22,500
Outstanding manufacturing exp. (7,65,000 × 1/12)	63,750
Outstanding admin. Exp. (1,80,000 × 1/12)	15,000
Outstanding income tax (1,68,000 × ¼)	42,000
Total CL (B)	2,55,750
Working capital requirement (A – B)	4,98,820
Add: Margin of safety @10%	49,882
Working capital requirement after margin	5,48,702

Working Note – 1:

Let domestic selling price = ₹ 100

Thus, Gross Profit on Domestic Sale = 100 × 20% = ₹ 20

Cost of Goods Sold on Domestic Sale = 100 – 20 = ₹ 80

Also export selling price = 100 – 10% = ₹ 90

Gross profit on export sales = 90 – 80 = ₹ 10

Working Note – 2:

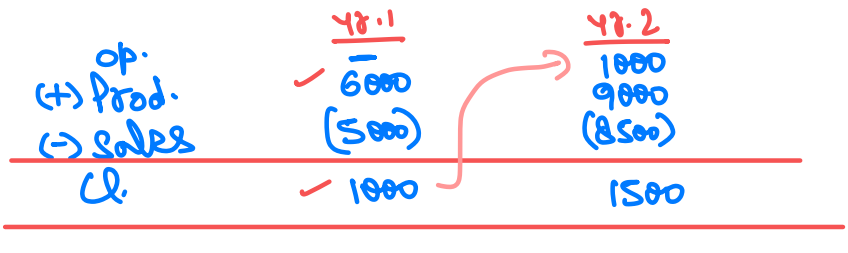
Particulars	Domestic	Export	Total
Sales	18,00,000	8,10,000	26,10,000
(-) Gross Profit	18L × 20% = 3,60,000	8.10L × 10/90 = 90,000	4,50,000
COGS	14,40,000	7,20,000	21,60,000
(+) Selling Exp. (1,12,500 in 18:8.10)	77,586	34,914	1,12,500
Cost of Sales	15,17,586	7,54,914	22,72,500

Question – 4

SK Limited is commencing a new project for manufacture of a plastic component. The following cost information has been ascertained for annual production of 12,000 units which is the full capacity:

	Cost per unit (₹)
Materials	40
Direct labour and variable expenses	20
Fixed manufacturing expenses	6
Depreciation	10
Fixed administration expenses	4
	80

The selling price per unit is expected to be ₹ 96 and the selling expenses ₹ 5 per unit, 80% of which is variable. In the first two years of operations, production and sales are expected to be as follows:



Year	Production (no. of units)	Sales (no. of units)
1	6,000	5,000
2	9,000	8,500

To assess the working capital requirements, the following additional information is available:

(a) Stock of materials → 2.25 months average consumption

(b) Work-in-progress → Nil

(c) Debtors → 1 months average sales

(d) Cash balance → ₹ 10,000

(e) Creditors for supply of materials → 1 months average purchase during the year

(f) Creditors for expenses → 1 months average of all expenses during the year

Prepare, for the two years:

(i) A Projected statement of Profit/Loss (Ignoring taxation)

(ii) A Projected statement of working capital requirements

Solution

(i) Projected Statement of Profit & Losses

Particulars	Year 1	Year 2
Opening Stock of Raw Material	-	45,000
Add: Purchases (Bal. fig.)	2,82,000	3,82,600
(-) Closing Stock of Raw Material	(45,000)	(67,500)
Year 1 = (2,40,000 × 2.25/12)		
Year 2 = (3,60,000 × 2.25/12)	6000×40	9000×40
Raw Material Consumed	2,40,000	3,60,000
(+) Direct Labour & Variable Expenses @ ₹ 20	1,20,000	1,80,000
Prime Cost	3,60,000	5,40,000
(+) Fixed Manufacturing (12,000 × 6)	72,000	72,000
(+) Depreciation (12,000 × 10)	1,20,000	1,20,000
Cost of Production	5,52,000	7,32,000
(+) Opening Stock of Finished Goods	-	92,000
(-) Closing Stock of Finished Goods	(92,000)	(1,22,000)
Year 1 = (5,52,000/6,000 × 1,000)		
Year 2 = (7,32,000/9,000 × 1,500)		
Cost of Goods Sold	4,60,000	7,02,000
(+) Fixed Administration expenses (12,000 × 4)	48,000	48,000
(+) Selling & Distribution overhead		
- Variable (5,000 × 4) (8,500 × 4)	20,000	34,000
(5×80%)		

Note → No o/s Credit is available for Dep.

- Fixed (12,000 × 1)	12,000	12,000
Cost of Sales	5,40,000	7,96,000
(+) Profit/(loss) (Bal. fig.)	(60,000)	20,000
(5,000 × 96) (8,500 × 96) **Sales**	4,80,000	8,16,000

Projected Statement of Working Capital Requirement

Particulars	Year 1	Year 2
Current Assets		
Inventory of Raw Material	45,000	67,500
Inventory of finished goods	92,000	1,22,000
Debtors (4,80,000 × 1/12) (8,16,000 × 1/12)	40,000	68,000
Cash	10,000	10,000
Total (A)	1,87,000	2,67,500
Current Liabilities: Creditors for Material		
(2,85,000 × 1/12) (3,82,500 × 1/12)	23,750	31,875
Creditors for expenses		
Year 1: {4,80,000 + 2,88,000 + 1,92,000 + 1,28,000} × 1/12	22,667	
Year 2: {7,20,000 + 2,88,000 + 1,92,000 + 1,84,000} × 1/12		28,833
Total (B)	46,417	60,708
Net working Capital (A) – (B)	1,40,583	2,06,792

Question – 5

SK Ltd a company newly commencing business in 2021 has the under mentioned projected Profit & Loss Statement:

	₹	₹
Sales		2,10,000
Cost of goods sold		(1,53,000)
Gross profit		57,000
Administrative Expenses	14,000	
Selling Expenses	13,000	27,000
Profit before tax		30,000
Provision for taxation		(10,000)
Profit after tax		20,000
The cost of goods sold has been arrived at as under:		
Material used	84,000	
Wages & Manufacturing expenses	62,500	

Depreciation	23,500
	1,70,000
Less: Stock of finished goods (10% of goods produced not yet sold)	(17,000)
	1,53,000

The figures given above relate only to finished goods not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring full materials but only 40% of the other expenses. The company believes in keeping materials equal to two months consumption in stock.

All expenses will be paid one month in advance. Suppliers of materials will be extending 1 – ½ months credit. Sale will be 20% for cash and the rest at two month's credit. 70% of the income tax will be paid in advance in quarterly instalments. The company wished to keep Rs 8,000 in cash. Prepare an estimate of:

(a) Working Capital

(b) Cash cost of working capital

Solution

Working Note:

Projected Statement of Profit & Losses

Particulars	**Total Basis**	**Cash Cost Basis**
Opening stock of material	-	-
(+) Purchases (B/F)	1,12,700	1,12,700
(-) Closing stock of material (96,600 × 2/12)	(16,100)	(16,100)
Material Consumed [84,000 + (84,000 × 15%)]	96,600	96,600
Wages & Manuf. Exp. [62,500 + (62,500 × 15% × 40%)]	66,250	66,250
Depreciation [23,500 + (23,500 × 15% × 40%)]	24,910	-
Gross Factory Cost	1,87,760	1,62,850
(+) Opening WIP	-	-
(-) Closing WIP	(17,760)	(16,350)
NFC/COP	1,70,000	1,46,500
(+) Opening stock of FG	-	-
(-) Closing stock of FG	(17,000)	(14,650)
COGS	1,53,000	1,31,850
(+) Administrative expenses	14,000	14,000
(+) Selling expenses	13,000	13,000
Total Cost	1,80,000	1,58,850

Statement of Working Capital Estimation

Particulars	Total Basis	Cash Cost Basis
Current Assets		
Inventory of Raw Material	16,100	16,100
Inventory of WIP	17,760	16,350
Inventory of finished goods	17,000	14,650
Debtors (1,80,000 × 80% × 2/12) (1,58,850 × 80% × 2/12)	24,000	21,180
Prepaid expenses [(66,250 + 14,000 + 13,000) × 1/12]	7,771	7,771
Cash	8,000	8,000
Total (A)	90,631	84,051
Current Liabilities:		
Creditors for Material (1,12,700 × 1.5/12)	14,087	14,087
Outstanding income tax (10,000 × 30%)	3,000	3,000
Total (B)	17,087	17,087
Net working Capital (A) – (B)	73,544	66,964

Question – 6

Day Ltd. a newly formed company has applied to the Private Bank for the first time for financing its working capital requirements. The following information are available about the projects for the current year:

Estimated level of activity	Completed Units of Production 31,200 plus unit of work in progress 12,000
Raw Material Cost	₹ 40 per unit
Direct Wages Cost	₹ 15 per unit
Overheads	₹ 40 per unit (inclusive of depreciation ₹ 10 per unit) 30
Selling price	₹ 130 per unit
Raw material in stock	Average 30 days consumption
Work in Progress stock	Material 100% and Conversion cost 50%
Finished goods stock	24,000 units
Credit allowed by the supplier	30 days
Credit allowed to purchases	60 days
Direct wages (lag in payment)	15 days
Expected cash balance	₹ 2,00,000

Assume that production is carried on evenly throughout the year (360 days) and wages and overheads accrue similarly. All sales are on the credit basis. You are required to calculate the Net Working Capital Requirement on Cash Cost Basis.

Solution

Statement showing Working Capital Requirements of

Current Assets	**Amount (₹)**
Stock of raw material (17,28,000 × 30/360)	1,44,000
Stock of work-in-progress [12,000 × (40 + 7.50 + 15)]	7,50,000
Stock of finished goods [24,000 × (40 + 15 + 30)]	20,40,000
Debtors for sale (6,12,000 × 60/360)	1,02,000
Cash	2,00,000
Total Current Assets (A)	**32,36,000**
Current Liabilities	
Creditors for purchase (18,72,000 × 30/360)	1,56,000
Creditors for wages (5,58,000 × 15/360)	23,250
Total Current Liabilities (B)	**1,79,250**
Net working capital (A – B)	**30,56,750**

Working Note-1

Statement of Cost

Particulars	**₹**
Opening stock of raw material	-
Add: Purchases (Bal. fig.)	18,72,000
Less: Closing stock of raw material (17,28,000 × 30/360)	(1,44,000)
Raw material consumed [(31,200 × 40) + (12,000 × 40)]	17,28,000
Add: Direct wages [(31,200 × 15) + (12,000 × 15 × 50%)]	5,58,000
Add: Overheads [(31,200 × 30) + (12,000 × 30 × 50%)]	11,16,000
Gross Factory Cost	34,02,000
Less: Closing work in progress [12,000 × (40 + 7.50 + 15)]	(7,50,000)
Cost of goods produced (31200 units)	26,52,000
Less: Closing stock of finished goods (26,52,000 × 24,000/31,200)	(20,40,000)
Cash cost of sales	6,12,000

Question – 7

MT Ltd. has been operating its manufacturing facilities till 31.3.2021 on a single shift working with the following cost structure:

	Per unit (₹)
Cost of Materials	24
Wages (out of which 60% is variable)	20
Overheads (out of which 20% variable)	20
	64
Profit	8
Selling price	72

V-12, F-8, V=4, F=16

As at 31.3.2021 with the sales of ₹ 17,28,000 the company held:

	(₹)
Stock of raw materials (at cost)	1,44,000

Work-in-progress (valued at prime cost)	88,000
Finished goods (valued at total cost)	2,88,000
Sundry debtors	4,32,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed from suppliers will continue to remain at the present level i.e. 2 months. Lag in payment of wages and overheads will continue to remain at one month.

You are required to calculate the additional working capital requirements, if the policy to increase output is implemented to assess the impact of double shift for long term as a matter of production policy.

Solution

Present sales units = $\frac{17,28,000}{72}$ = 24,000 units

Sales units after double shift = 24,000 × 2 = 48,000 units

Statement of Cost

	24,000 units		**48,000 units**	
	Per unit	**Total**	**Per unit**	**Total**
Raw Material	24	5,76,000	21.60	10,36,000
Wages:				
Variable	12	2,88,000	12	5,76,000
Fixed	8	1,92,000	4	1,92,000
Overheads:				
Variable	4	96,000	4	1,92,000
Fixed	16	3,84,00	8	3,84,000
Total cost	64	15,36,000	49.6	23,80,800
Profit	8	1,92,000	22.4	10,75,200
Sales	72	17,28,000	72	34,56,000

Stock of raw material units on 31.3.2021 = $\frac{1,44,000}{24}$ = 6,000 units

Stock of WIP units on 31.3.2021 = $\frac{88,000}{24+20}$ = 2,000 units

Stock of finished goods units on 31.3.2021 = $\frac{2,88,000}{64}$ = 4,500 units

Statement of Working Capital Requirement

	Single shift (24,000 units)			**Double shift (48,000 units)**		
	Units	**Rate**	**Amount**	**Units**	**Rate**	**Amount**
Raw Material stock	6,000	24	1,44,000	12,000	21.60	2,59,200
WIP stock	2,000	44	88,000	2,000	37.60	75,200
Finished goods stock	4,500	64	2,88,000	9,000	49.60	4,46,400
Sundry Debtors	6,000	64	3,84,000	12,000	49.60	5,95,200
Total Current Assets (A)			9,04,000			13,76,000
Creditors for material	4,000	24	96,000	8,000	21.60	1,72,800

Creditors for wages	2,000	20	40,000	4,000	16	64,000
Creditors for Overheads	2,000	20	40,000	4,000	12	48,000
Total Current Liabilities (B)			1,76,000			2,84,800
Working Capital (A – B)			7,28,000			10,91,200

Additional working capital requirement = ₹ 10,91,200 - ₹ 7,28,000 = ₹ 3,63,200

Question – 8

From the following information of SK Ltd., you are required to calculate:

(a) Net operating cycle period

(b) Number of operating cycles in a year

	(₹)
Raw material inventory consumed during the year	6,00,000
Average stock of raw material	50,000
Work-in-progress inventory	5,00,000
Average work-in-progress inventory	30,000
Cost of goods sold during the year	8,00,000
Average finished goods stock held	40,000
Average collection period from debtors	45 days
Average credit period availed	30 days
No. of days in a year	360 days

Solution

(a) Calculation of Net Operating Cycle period of XYZ Ltd.

$$\text{Raw Material storage period (R)} = \frac{\text{Average stock of raw material}}{\text{Average Cost of Raw Material Consumption per day}}$$

$$= \frac{₹\,50,000}{₹\,6,00,000 \div 360\,\text{days}} = \frac{₹\,50,000}{1,667} = 30\ \text{days}$$

Work-in-progress inventory holding period (W)

$$= \frac{\text{Average Work-in-progress inventory}}{\text{Average Cost of Production per day}}$$

$$= \frac{₹\,30,000}{₹\,5,00,000 \div 360\,\text{days}} = \frac{₹30,000}{1,389} = 22\ \text{days}$$

$$\text{Finished Goods storage period (F)} = \frac{\text{Average stock of finished goods}}{\text{Average Cost of Goods Sold per day}}$$

$$= \frac{₹40,000}{₹8,00,000 \div 360\,\text{days}} = \frac{₹40,000}{2,222}$$

$$= 18\ \text{days}$$

Receivables (Debtors) collection period (D) = 45 days

Credit Period allowed by creditors (C) = 30 days

Net Operating Cycle = R + W + F+ D – C= 30 + 22 + 18 + 45 – 30 = 85 days

(b) Number of Operating Cycles in a year $= \frac{\text{No. of days in a year}}{\text{Operating Cycle period}}$

$$= \frac{360\,\text{days}}{85\,\text{days}} = 4.23\ \text{times}$$

Question – 9

The following information is provided by MNP Ltd. for the year ending 31st March, 2020:

Raw Material Storage Period	45 days
Work-in-Progress conversion period	20 days
Finished Goods storage period	25 days
Debt Collection period	30 days
Creditors' payment period	60 days
Annual Operating Cost	₹ 25,00,000
(Including Depreciation of ₹ 2,50,000)	

Assume 360 days in a year.

You are required to calculate:

(i) Operating Cycle period.

(ii) Number of Operating Cycle in a year

(iii) Amount of working capital required for the company on a cost basis.

(iv) The company is a market leader in its product and it has no competitor in the market. Based on a market survey it is planning to discontinue sales on credit and deliver products based on pre-payments in order to reduce its working capital requirement substantially You are required to compute the reduction in working capital requirement in such a scenario.

Solution

(i) **Statement showing Operating cycle**

	Raw Material storage Period	= 45 days
	WIP Conversion Period	= 20 days
	Finished goods storage period	= 25 days
	Debt collection period	= 30 days
Less:	Creditors' payment period	= (60 days)
	Operating cycle period	= 60 days

(ii) Number of operating cycles in a year = $\frac{360}{Operating\ cycle\ period} = \frac{360}{60\ days}$ = 6 cycles

(iii) Amount of working capital required on cash cost basis = $\frac{(25,00,000-2,50,000)}{6}$ = ₹ 3,75,000

(iv) New operating cycle period = 60 days – Debt collection period = 60 – 30 = 30 days

Number of operating cycles in a year = $\frac{360}{30}$ = 12 cycles

New amount of working capital required on cash cost basis

= $\frac{(25,00,000-2,50,000)}{12}$ = ₹ 1,87,500

Saving in cash cost of working capital = ₹ 3,75,000 - ₹ 1,87,500 = ₹ 1,87,500

Question – 10

Balance sheet of X Ltd. for the year ended 31st March, 2022 is given below:

Norm-1) MPBF = 75% x (480 - 280) = 150

Norm-2) MPBF = (75% x 480) - 280 = 80

Norm-3) MPBF = [75% x (480 - 300)] - 280 = 57.5

(₹ in lakhs)

Liabilities	Amount	Assets	Amount
Equity Shares ₹ 10 each	200	Fixed Assets	500
Retained Earnings	200	Raw materials	150
11% Debentures	300	WIP	100
Public Deposits (short Term)	100	Finished goods	50
Trade Creditors	80	Debtors	125
Bills Payable	100	Cash/Bank	55
	980		980

CL = 280

CA = 480

Calculate the amount of maximum permissible bank finance under three methods as per Tandon Committee lending norms. The total core current assets are assumed to be ₹ 30 lakhs.

Solution

Total current assets = 150 + 100 + 50 + 125 + 55 = ₹ 480 lakhs

Total current liabilities = 100 + 80 + 100 = ₹ 280 lakhs

Core current assets = ₹ 30 lakhs

1st Method **(₹ in lakhs)**

	Total current assets required	480
Less:	Current liabilities	(180)
	Working capital gap	300
Less:	25% of long term sources	(25)
	Maximum permissible bank borrowings	**225**

2nd Method

	Current assets required	480
Less:	25% to be provided by long term funds	(120)
		360
Less:	Current Liabilities	(180)
	Maximum permissible bank borrowings	**180**

3rd Method

	Current assets	480
Less:	Core current assets required	(30)
		450
Less:	25% to be provided by long term funds	(112.50)
		337.50
Less:	Current Liabilities	(180)
	Maximum permissible bank borrowings	**157.50**

Working Capital Management

MCQs

Q(1). Trade credit is a source of:
A. Long-term finance
B. Medium term finance
C. Spontaneous source of finance
D. None of the above

Q(2). Working capital is defined as:
A. Excess of current assets over current liabilities
B. Excess of current liabilities over current assets
C. Excess of fixed assets over long term liabilities
D. None of the above

Q(3). Working capital is also known as "Circulating capital, fluctuating capital and revolving capital:. The aforesaid statement is;
A. Correct
B. Incorrect
C. Cannot say
D. None of the above

Q(4). The basic objectives of Working capital management are:
A. Optimum utilization of resources for profitability
B. To meet day to day current obligations
C. Ensuring marginal return on current assets is always more than cost of capital
D. Select any one of the above statements

Q(5). The term Gross Working Capital is known as:
A. the investment in current liabilities
B. The investment in long-term liability
C. The investment in current assets
D. None of the above

Q(6). The term net working capital refers to the difference between the current assets minus current liabilities.
A. The statement is correct
B. The statement is incorrect
C. I cannot say
D. None of the above

Q(7). The term "Core current assets" was coined by:
A. Chore Committee
B. Tandon Committee
C. Jilani Committee
D. None of the above

Q(8). The concept operating cycle refers to the average time which elapses between the acquisition of raw materials and the final cash realization. This statement is:
A. Correct
B. Incorrect
C. Partially true
D. I cannot say

Q(9). As a matter of self-imposed financial discipline can there be a situation of zero working capital now-a-days in some of the professional managed organizations.
A. Yes
B. No
C. Impossible
D. Cannot say

Q(10). Over trading arises when a business expands beyond the level of funds available. The statement is:
A. Incorrect
B. Correct
C. Partially correct
D. I cannot say

Q(11). A Conservative Working Capital strategy call for high levels of current assets in relation to sales:
A. I agree
B. Do not agree
C. I cannot say
D. None of the above

Q(12). The term Working Capital leverage refer to the impact of level of working capital on company's profitability. This measures the responsiveness of ROCE for changes in current assets.
A. I agree
B. Do not agree
C. The statement is partially true
D. None of the above

Q(13). The term spontaneous source of fiancé refers to the finance which naturally arise in the course of business operations. The statement is:

A. Correct
B. Incorrect
C. Partially correct
D. I cannot say

Q(14). Under hedging approach to financing of working capital requirements of a firm, each asset in the balance sheet assets side would be offset with a financing instrument of the same approximately maturity. This statement is:

A. Incorrect
B. Correct
C. Partially correct
D. I cannot say

INVENTORY MANAGEMENT - CONCEPTS

1. **Determination of Order Size** (OS)

If order size is low → Ordering cost (OC) high

If order size is high → Carrying cost (CC) high

↓

Select OS where OC & CC is minimum

2. **EOQ** = $\sqrt{\frac{2 \times A \times O}{C}}$ where, A = Annual requirement of material

O = Cost per order

C = Carrying cost per unit per annum

3. Number of orders = $\frac{A}{OS}$ → Round off to next value

Frequency of order = $\frac{365 / 52 / 12}{No.\ of\ orders}$

Average quantity of goods = $\frac{Order\ size}{2}$

Average quantity of goods (with safety stock) = Safety stock + $\frac{Order\ size}{2}$

4. Total ordering cost = No. of orders × Cost per order

Total carrying cost = Average quantity × Carrying cost per unit per annum

5. If carrying cost is given in % then such % is to be applied on purchase price per unit of material.

INVENTORY MANAGEMENT - QUESTIONS

Question – 1

SK Ltd. uses a large quantity of salt in its production process. Annual consumption is 60,000 tonnes over a 50 week working year. It costs ₹ 100 to initiate and process an order and delivery follow two week later. Storage costs for the salt are estimated at ₹ 0.10 per tonne per annum. The current practice is to order twice a year when the stock falls to 10,000 tonnes. Identify an appropriate ordering policy for SK ltd. and contrast it with the cost of the current policy.

Solution

At present order size = 60,000 ÷ 2 = 30,000 tonnes

Re-order level = Safety stock + (Average consumption × Average time)

$10{,}000 = \text{Safety stock} + \left[\frac{60{,}000}{50} \times 2\right]$

Safety stock = 7,600 tonnes

Thus, average stock = 7,600 + (30,000 ÷ 2) = 22,600

The recommended policy should be based on the EQO model.

$EOQ = \sqrt{\frac{2 \times A \times O}{C}} = \sqrt{\frac{2 \times 60{,}000 \times 100}{0.10}} = 10{,}954 \text{ tonnes}$

No. of orders = 60,000 ÷ 10,954 = 5.5 or 6 orders

Average stock = 10,954 ÷ 2 = 5,477

Statement of Cost

Particulars	OS = 30,000	OS = 10,954
Ordering cost	2 × 100 = 200	6 × 100 = 600
Carrying cost	22,600 × 0.10 = 2,260	5,477 × 0.10 = 548
Total cost	2,460	1,148

Thus saving due to EOQ policy = 2,460 – 1,148 = `1,312

Question – 2

SK company is a distributor of air filters to retail stores. It buys its filters from several manufacturers. Filters are ordered in lot sizes of 1,000 and each order costs ₹ 40 to place. Demand from retail stores is 20,000 filters per month, and carrying cost is ₹ 0.10 a filter per month.

(a) Compute the optimal order quantity with respect to so many lot sizes?

(b) Calculate the optimal order quantity if the carrying cost were ₹ 0.05 a filter per month?

(c) Compute the optimal order quantity if ordering costs were ₹ 10?

Solution

In this case lot size is 1,000 so total annual requirement will be 20,000 ÷ 1,000 = 20 lots

Also, carrying cost should also be per lot.

(a) EOQ = $\sqrt{\frac{2\times A\times O}{C}} = \sqrt{\frac{2\times 20\times 40}{(0.10\times 1000)}} = 4$ lots

Thus, optimal order size would be 4,000 filters.

(b) EOQ = $\sqrt{\frac{2\times A\times O}{C}} = \sqrt{\frac{2\times 20\times 40}{(0.05\times 1000)}} = 5.66$ lots

Since, lot size is 1,000 filters. So the company would order 6,000 filters each time.

(c) EOQ = $\sqrt{\frac{2\times A\times O}{C}} = \sqrt{\frac{2\times 20\times 10}{(0.10\times 1000)}} = 2$ lots

Thus, optimal order size would be 2,000 filters.

Inventory Management

MCQs

Q(1). When the items of inventory are classified according to value of usage, the technique is known as:
A. XYZ Analysis
B. ABC Analysis
C. DEF Analysis
D. None of the above

Q(2). EOQ is the quantity that minimizes
A. Total Ordering Cost
B. Total Inventory Cost
C. Total Interest Cost
D. Safety Stock Level

Q(3). Cost of not carrying sufficient inventory is known as
A. Carrying Cost
B. Holding Cost
C. Total Cost
D. Stock-out Cost

Q(4). Annual consumption of material - 4,000 units Ordering Cost - ₹ 5
Cost per unit - ₹ 2
Storage & carrying cost - 8% p.a.
Economic Order Quantity for the item is:
A. 500 units
B. 800 units
C. 300 units
D. 400 units

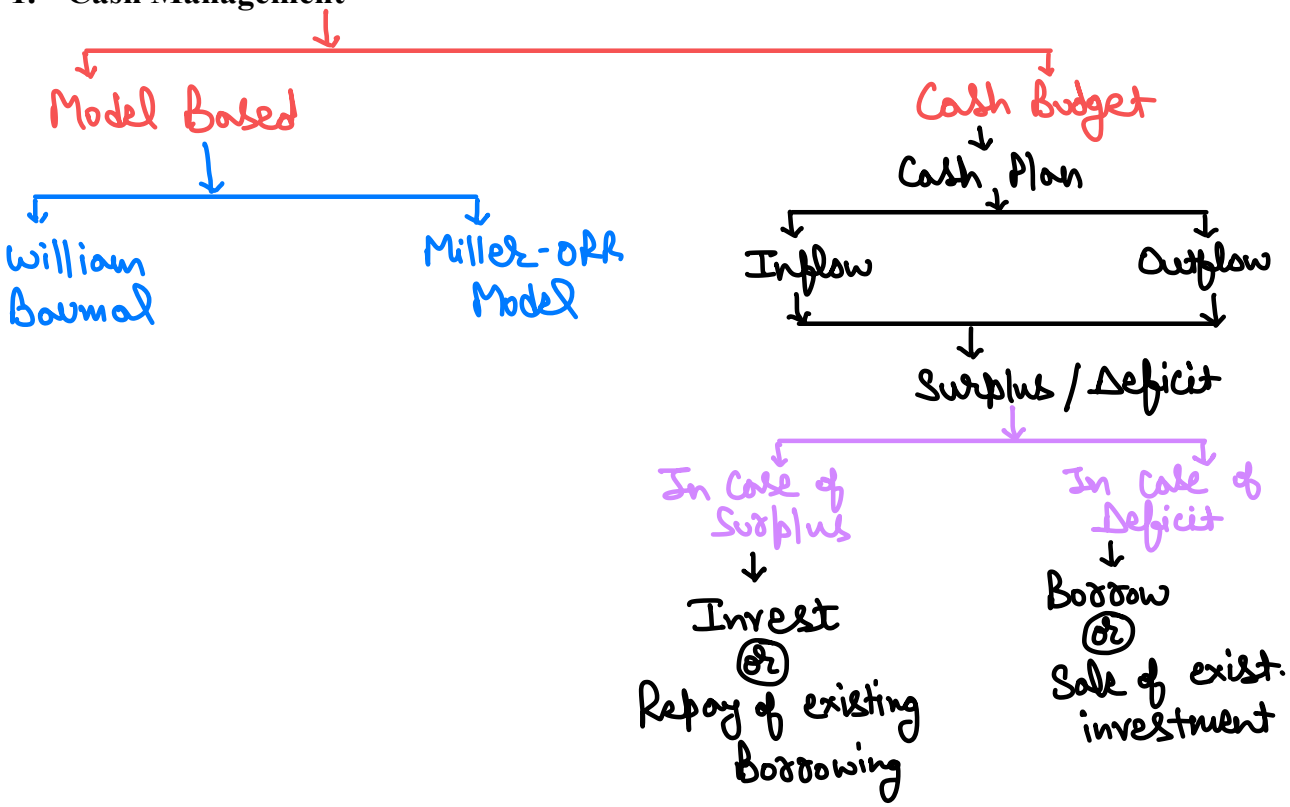
$\sqrt{\frac{2 \times 4000 \times 5}{(8\% \times 2)}} = 500$

Q(5). The annual demand of a certain component bought from the market is 1,000 units. The cost of placing an order is ₹ 60 and the carrying cost per unit is ₹ 3 p.a. The Economic Order Quantity for the item is _____
A. 200 units
B. 400 units
C. 600 units
D. 500 units

$\sqrt{\frac{2 \times 1000 \times 60}{3}} = 200$

CASH MANAGEMENT - CONCEPTS

1. Cash Management



Unless otherwise Provided. it is assumed that :-

1) Investment / Repay of Borrowing will be at end of period

2) Borrowing / Sale of exist. invest. will be at begining of period

2. William Baumol Model

If low cash balance is maintained – Transaction Cost will be high

If high cash balance is maintained – Opportunity Cost will be high

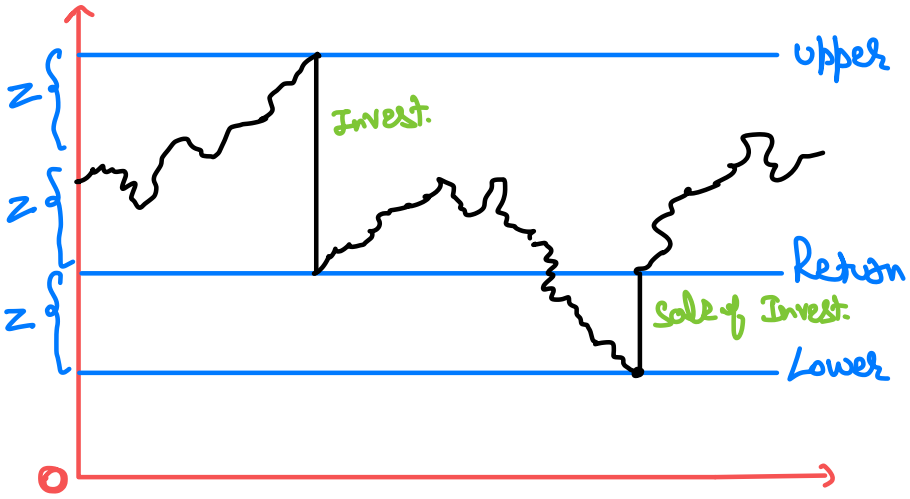
Optimum Cash Balance – where Trans. Cost ⊕ Opportunity Cost is minimum

Optimum Cash balance = $\sqrt{\frac{2 \times U \times P}{S}}$ where, U = Annual cash requirement

P = Fixed cost per transaction

S = opportunity cost for ₹ 1 p.a.

3. Miller-Orr Cash Management Model



Spread = Z

Return level = Lower level + Spread

Upper level = Lower level + 3(Spread)

= Return level + 2(Spread)

4. Cash Budget

Performa Cash Budget

Particulars	April	May	June
Opening Balance (A)	-	-	-
Receipt:			
Sales realization	-	-	-
Advance from sale of assets or investment	-	-	-
Dividend	-	-	-
Total Receipt (B)	-	-	-
Payments:			
Creditors payment	-	-	-
Wages Payment	-	-	-
Overheads Payment	-	-	-
Payment related to purchase of assets	-	-	-
Dividend payment	-	-	-
Income tax	-	-	-
Total Payments (C)	-	-	-
Closing Balance (A + B – C)	-	-	-

(–) Investment
(+) Borrowing
(–) Repay of Borrowing
(+) Sale of Investment

Closing Balance

CASH MANAGEMENT – QUESTIONS

Question – 1

A firm maintains a separate account for cash disbursement. Total disbursement are ₹ 10,50,000 per month or ₹ 1,26,00,000 per year. Administrative and transaction cost of transferring cash to disbursement account is ₹ 20 per transfer. Marketable securities yield is 8% per annum. Compute the optimum cash balance according to William J. Baumol model.

U = 12600000
P = Rs. 20
S = 8/100 × 1 = 0.08

Solution

Optimum cash balance = $\sqrt{\frac{2\times1,26,00,000\times20}{0.08}}$ = ₹ 79,372.54

Question – 2

A garment trader is preparing cash forecast for first three months of calendar year 2021. His estimated sales for the forecasted periods are as below:

	January (₹ '000)	February (₹ '000)	March (₹ '000)
Total Sales	600	600	800

(i) The trader sells directly to public against cash payments and to other entities on credit. Credit sales are expected to be four times the value of direct sales to public. He expects 15% customers to pay in the month in which credit sales are made, 25% to pay in the next month and 58% to pay in the next to next month. The outstanding balance is expected to be written off.

(ii) Purchase of goods are made in the month prior to sales and it amounts to 90% of sales and are made on credit. Payments of these occur in the month after the purchase. No inventories of goods are held.

(iii) Cash balance as on 1st January, 2021 is ₹ 50,000.

(iv) Actual sales for the last two months of calendar year 2020 are as below:

	November (₹ '000)	December (₹ '000)
Total Sales	640	880

You are required to prepare a monthly cash budget for the three months from January to March, 2021.

Solution

Given, Cash sales = 25% of credit sales

Thus, let credit sales = y ∴ Cash sales = 0.25y

∴ y + 0.25y = Total sales

1.25y = Total sales

$y = \frac{Total\ Saels}{1.25}$

y = 80% of total sales

Thus, Credit sales = 80% of total sales and Cash sales = 20% of total sales

100
20 80
12 20 46.4

Feb. - Sale
↓
Jan. - Purch → Pay - Feb.
(90% × Sales)

Cash Budget

Particulars	Jan.	Feb.	March
Opening Balance (A)	**50**	**174.96**	**355.28**
Receipts			
20% of current month	120	120	160
12% of current month	72	72	96
20% of previous month	176	120	120
46.4% of previous to previous month	296.96	408.32	278.40
Total receipts (B)	**664.96**	**720.32**	**654.40**
Payments			
Creditors payment	540	540	720
Total payments (C)	**540**	**540**	**720**
Closing Balance (A + B - C)	**174.96**	**355.28**	**289.68**

Question – 3

Following information relates to ABC Company for the year 2016:

(a) Projected Sales: (in ₹ lakhs)

Month	August	September	October	November	December
Sales	35	40	40	45	46

(b) Gross Profit Margin will be 20% on sales

(c) 10% of projected sales will be cash sales. Out of credit sales of each month, 50% will be collected in the next month and the balance will be collected during the second month following the month of sale.

(d) Creditors will be paid in the first month following credit purchase. There will be credit purchase only

(e) Wages and salaries will be paid on the first day of the next month. The amount will be ₹ 3 lakhs each month.

(f) Interim dividend of ₹ 2 lakhs will be paid in December 2016.

(g) Machinery costing ₹ 10 lakhs will be purchased in September 2016. Repayment by instalment of ₹ 50,000 p.m., will start from October 2016.

(h) Administrative Expenses of ₹ 1,00,000 permonth will be paid in the month of their incurrence.

(i) Assume no minimum cash balance is required. Opening cash balance as on 01.10.2016 is estimated at ₹ 10 lakhs.

Prepare the monthly cash budget for the 3 month period (October 2016 to December 2016).

Solution

Cash Budget for months from October to December (₹ lakhs)

	Particulars	October	November	December
A.	Opening balance	10.00	142.5	21.25
B.	**Receipts / Inflows:** Cash Sales	40x10%=4.00	45x10%=4.50	46x10%=4.60
	Collection from debtors (WN-1)	33.75	36.00	38.25

COGS = RM Cons. + DL + D.Exp. + F.OHs
✓ = ✓ + ✓ + 0 + 0
RM Cons. = COGS − DL

	Total receipts	37.75	40.50	42.85
C.	**Payments/Outflows:**			
	Payment to creditors (WN1)	29.00	29.00	33.00
	Wages and salaries	3.00	3.00	3.00
	Interim dividend	--	--	2.00
	Machinery purchase – Instalment	0.50	0.50	0.50
	Administration expenses	1.00	1.00	1.00
	Total Payments	33.50	33.50	39.50
D.	**Closing balance / (overdraft)**	**14.25**	**21.25**	**24.60**

Working Note:

Computation of collection from debtors and credit purchases (₹ in lakhs)

	Particulars	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
a.	Total sales	35.00	40.00	40.00	45.00	46.00
b.	Cash sales at 10% of (a)	3.50	4.00	4.00	4.50	4.60
c.	Credit sales (a-b)	31.50	36.00	36.00	40.50	42.40
d.	Collection of debtors: 50% in next month	--	15.75	18.00	18.00	20.25
	50% in second month	--	--	15.75	18.00	18.00
e.	COGS [GP Ratio = 20% on sales, So, COGS = 80% of sales, i.e., 80% of (a)]	28.00	32.00	32.00	36.00	36.80
f.	Wages & Salaries (assumed debited to trading a/c)	3.00	3.00	3.00	3.00	3.00
g.	Balance being material consumption cost (e-f)	25.00	29.00	29.00	33.00	33.80

Note: Material consumption cost = Opening stock + Purchases (-) closing stock.

In the absence of information, opening stock = Closing stock. Hence, material consumed = Purchases. Since all purchases are on credit basis only, total purchases (i.e. Material consumed) = Credit purchases.

Alternatively, Wages and salaries can be assumed as other expenses debited to P&L, and hence ignored in the above computations. In such case, COGS = Credit purchases, by following the above analogy.

Question – 4

Based on the following information prepare a cash budget for SK Ltd:

	1st Qtr (₹)	**2nd Qtr (₹)**	**3rd Qtr (₹)**	**4th Qtr (₹)**
Opening cash balance	10,000	—	—	—
Collections from customers	1,25,000	1,50,000	1,60,000	2,21,000
Payments:				
Purchase of materials	20,000	35,000	35,000	54,200
Other expenses	25,000	20,000	20,000	17,000
Salary and wages	90,000	95,000	95,000	1,09,200

Income tax	5,000	—	—	—
Purchase of machinery	—	—	—	20,000

The company desired to maintain a cash balance of ₹ 15,000 at the end of each quarter. Cash can be borrowed or repaid in multiples of ₹ 500 at an interest of 10% per annum. Management does not want to borrow cash more than what is necessary and wants to repay as early as possible. In any event, loans cannot be extended beyond four quarters. Interest is computed and paid when the principal is repaid. Assume that borrowings take place at the beginning and repayments are made at the end of the quarters.

Solution

Cash Budget

Particulars	Quarter-1	Quarter-2	Quarter-3	Quarter-4
Opening Balance (A)	**10,000**	**15,000**	**15,000**	**15,325**
Collection from customers (B)	**1,25,000**	**1,50,000**	**1,60,000**	**2,21,000**
Payments:				
Purchase of material	20,000	35,000	35,000	54,200
Other expenses	25,000	20,000	20,000	17,000
Salary	90,000	95,000	95,000	1,09,200
Income Tax	5,000	-	-	-
Purchase of Machinery	-	-	-	20,000
Total Payments (C)	**1,40,000**	**1,50,000**	**1,50,000**	**2,00,400**
Surplus\(Deficit) (A + B – C)	**(5,000)**	**15,000**	**25,000**	**35,925**
Add: Borrowing	20,000	-	-	-
Less: Principal Repayment		-	9,000	11,000
Less: Interest payment	-	-	675	1,100
Closing Balance	**15,000**	**15,000**	**15,325**	**23,825**

Working notes:

(1) Since there was deficit of ₹ 5,000 in Q-1, thus borrowing will be done by company of ₹ 20,000 so that the closing balance stands at ₹ 15,000.

(2) In Q-2, there is neither any surplus nor and deficit as compared to the required minimum balance. So neither any borrowing nor any repayment can be done.

(3) In Q-3, the company has ₹ 10,000 in excess than the minimum required closing balance. This can be used to repay the amount borrowed in Q-1.

Let principal to be repay in Q-3 = y

∴ Interest = y × 10% × (3/4) = 0.075y

y + 0.075y = 10,000

y = ₹ 9,302

∴ Principal repayment in multiples of ₹ 500 that can be done will be ₹ 9,000

Interest on amount repaid = 9,000 × 10% × (3/4) = ₹ 675

(4) In Q-4, the company has ₹ 20,925 in excess than the minimum required closing balance. This will be used to repay the balance amount of debt outstanding i.e. ₹ 11,000. Interest on this will be ₹ 1,100 (11,000 × 10%).

Question – 5

You are given below the Profit & Loss Accounts for two years for a company:

Profit & Loss Account

Particulars	Year 1(₹)	Year 2(₹)	Particulars	Year 1(₹)	Year 2(₹)
To Opening Stock	40,00,000	50,00,000	By Sales	4,00,00,000	5,00,00,000
To Raw Materials	1,50,00,000	2,00,00,000	By Closing Stock	50,00,000	75,00,000
To Stores	50,00,000	60,00,000	By Misc. Income	5,00,000	5,00,000
To Manufacturing Exp.	50,00,000	80,00,000			
To Other Expenses	50,00,000	50,00,000			
To Depreciation	50,00,000	50,00,000			
To Net Profit	65,00,000	90,00,000			
	4,55,00,000	5,80,00,000		4,55,00,000	5,80,00,000

Sales are expected to be ₹ 6,00,00,000 in year 3. Other expenses will increase by ₹ 25,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. Compute how much cash from operations will be available in year 3 for the purpose? Ignore income tax.

Solution

Projected Profit & Loss Account for Year 3

Particulars	Year 3 (₹)	Particulars	Year 3 (₹)
To Material Consumed (w.n. – 1)	2,10,00,000	By Sales	6,00,00,000
To Stores (w.n. – 2)	72,00,000	By Misc. Income	5,00,000
To Manufacturing Exp. (w.n. – 3)	96,00,000		
To Other Expenses	75,00,000		
To Depreciation	50,00,000		
To Net Profit	1,02,00,000		
	6,05,00,000		6,05,00,000

Cash Flow

Particulars	Amount
Profit	1,02,00,000
Add: Depreciation	50,00,000
Less: cash required for increase in stock	(25,00,000)

Net cash inflow	**1,27,00,000**

Amount available for servicing the loan = 75% × 1,27,00,000 = ₹ 63,50,000

Working Notes

(1) Material consumed in year 2 = 50,00,000 + 2,00,00,000 – 75,00,000 = ₹ 1,75,00,000

Material consumed in year 2 as % of sales = $\frac{1,75,00,000}{5,00,00,000} \times 100$ = 35% of sales

Material consumption in year 3 = 6,00,00,000 × 35% = ₹ 2,10,00,000

(2) Stores as % of sales in year 2 = $\frac{60,00,000}{5,00,00,000} \times 100$ = 12% of sales

Stores in year 3 = 6,00,00,000 × 12% = ₹ 72,00,000

(3) Manufacturing expenses as % of sales in year 2 = $\frac{80,00,000}{5,00,00,000} \times 100$ = 16% of sales

Manufacturing expenses in year 3 = 6,00,00,000 × 16% = ₹ 96,00,000

Cash Management

MCQs

Q(1). Willian J Baumol's model of Cash Management determines optimum cash level where the carrying cost and transaction cost are:

A. Maximum
B. Minimum
C. Medium
D. None of the above

Q(2). In Miller-ORR Model of cash management:

A. The lower, upper limit, and return point of cash balances are set out
B. Only upper limit and return point are decided
C. Only lower limit and return point are decided
D. None of the above are decided

Q(3). In Miller-ORR Model of cash management:

A. Upper limit = lower limit + Return point
B. Upper limit = lower limit + 2(Return point)
C. Upper limit = lower limit + 3(Return point)
D. None of the above

Q(4). Of the four costs shown below, which would not be included in the cash budget of an insurance firm?

A. Depreciation of fixed asset
B. Commission paid to agents
C. Office salaries
D. Capital cost of a new computer

Q(5). The term cash includes

A. Cash and Bank Balances
B. All the Current Assets
C. All the Current Liabilities
D. None of the above

Q(6). Non-cash transactions _____

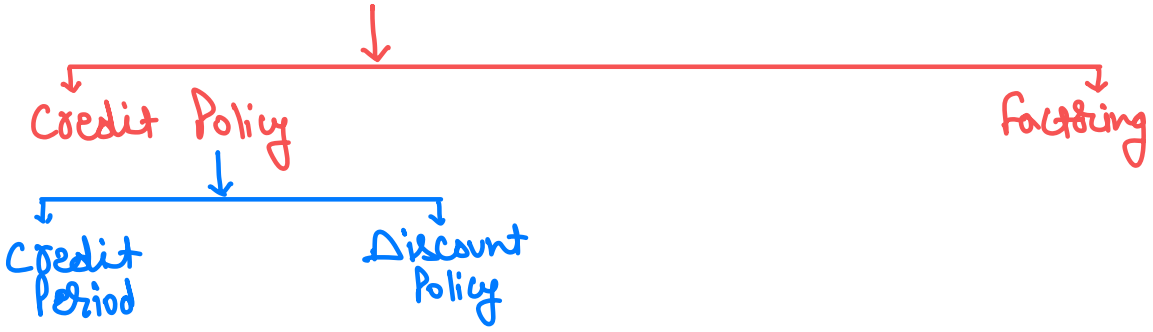
A. Form part of cash budget
B. Do not form part of cash budget
C. May or may not form part of cash budget
D. I cannot say whether they are part of cash budget

Q(7). Which of the following will not affect preparation of cash budget?

A. Loan taken by firm
B. Proceeds from asset disposal
C. Reduction in provision for doubtful debts
D. Cash sales

RECEIVABLES & PAYABLES MANAGEMENT - CONCEPTS

1. Receivables Management



2. Credit period

It is the duration by which the amount becomes due and must be paid by the debtors.

Over due → when Debtors exceed Credit Period.
→ when debtors don't pay within Credit Period

Credit Period

Increase in Credit Period

Benefits	
Inc in Contribution	✓
Dec. in any other Cost	✓
(A)	✓
Costs	
Inc. in Bad debts	✓
Inc. in opp. Cost	✓
Inc. in any other Cost	✓
(B)	✓
Net Incremental Benefit / (Cost) (A-B)	✓

Decrease in Credit Period

Benefits	
Dec. in Bad debts	✓
Dec. in opp. Cost	✓
Dec. in any other Cost	✓
(A)	✓
Costs	
Dec. in Contribution	✓
Inc. in any other Cost	✓
(B)	✓
Net Incremental benefit / (Cost) (A-B)	✓

3. Calculation of Incremental Bad Debts

Statement of Bad Debts Calculation

Particulars	Existing	Option I	Option II
Sales (A)	--	--	--
Bad Debts (in %) (B)	--	--	--
Bad Debts (in ₹) (A×B)	--	--	--
Increase in bad debts	-	--	--

4. Calculation of Incremental Opportunity Cost

Statement of Opportunity Cost Calculation

Particulars	Existing	Option I	Option II
Variable cost	--	--	--
Fixed cost	--	--	--
Total cost (Annual)	s--	--	--
Average credit period (ACP)	--	--	--
Average invest. in debtors $\left[\frac{TC}{365} \times ACP\right]$	--	--	--
Increase in invest. in debtors	--	--	--
Inc. in opportunity cost @ __%	-	--	--

5. Points to Remember (PTRs)

- Contribution = Sales – Variable Cost
- PV Ratio = $\frac{Contribution}{Sales} \times 100$ = 100 – Variable Cost Ratio
- If Average cost per unit is given than

Fixed cost = (Average cost per unit – Variable cost per unit) × No. of units

- If Debtors turnover Ratio (DTR) is given then

Average Investment in debtors = $\frac{Total\ cost}{DTR}$

For FC
- Amt. given in Ques.
- Ques. given data of Avg. Cost P.U.

Inv. in Debs.
- ACP given in Ques. → $\frac{TC}{365} \times ACP$
- DTR given in Ques. → $\frac{TC}{DTR}$

- In case if questions provides tax, then all items has to be net of tax i.e. (1 – t)

- Special care to be taken regarding opportunity cost rate whether it is before tax or after tax and accordingly tax treatment should be done.

- ACP = (Days)(W1) + (Days)(W2) +……..+ (Days)(Wn)

6. Discount Policy

Meaning of discount terms

1/10 Net 40

Get 1% discount if paid within 10 days else pay withing 40 days without discount.

$$\text{Effective/Implied Annual rate of Discount} = \frac{Discount}{(100-Discount)} \times \frac{365}{No.\ of\ days\ of\ prepayment} \times 100$$

7. Factoring

In this case, factor provides various kinds of services to the business such as collection, advances, etc.

Statement of Evaluation of Factoring Proposal

Particulars	Amount
Saving in Bad debts	--
Saving in administration cost	--
Interest / Opportunity cost saving	--
Any other savings	--
Total Savings (A)	--
Factoring Commission	--
Interest cost on advance	--
Any other cost	--
Total Costs (B)	--
Net Benefit or Cost (A – B)	--

Always assume saving dues is silent

8. Points to Remember (PTRs)

(A) Factoring commission = Annual credit sales × Commission %

(B) Calculation of amount of advance

Particulars	Amount
Annual credit sales	--
(-) Factor Reserve	--
(-) Factoring Commission	--
Amount available for advance	--
(-) Interest	--
Amount of Advance	--

Payable in advance

(C) Rate of effective cost of factoring = $\frac{Net\ annual\ cost\ of\ factoring}{Amount\ of\ advance} \times 100$

(D) Compare rate of effective cost of factoring with bank interest rate to take decision.

9. Management of Payables

Effective/Implied Annual rate of Discount = $\frac{Discount}{(100-Discount)} \times \frac{365}{No.\ of\ days\ of\ prepayment} \times 100$

e.g. COS is 80% of Sales. VC is 70% of COS & FC is 30%.
Given Sales = Rs. 10l.

Sol:
COS = 10l × 80% = Rs. 8l
VC = 8l × 70% = Rs. 5.60l
FC = 8l × 30% = Rs. 2.40l

RECEIVABLES & PAYABLES MANAGEMENT - QUESTIONS

Question – 1

A trader whose current sales are in the region of ₹ 15 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	Increase in collection	Increase in sales	% default anticipated
A	15 days	₹ 60,000	1.5%
B	30 days	₹ 90,000	2%
C	45 days	₹ 1,50,000	3%
D	60 days	₹ 1,80,000	3.5%
E	90 days	₹ 2,00,000	4%

The selling price per unit is ₹ 5. Average cost per unit is ₹ 4; variable cost per unit is ₹ 2.75. The current bad debts loss is 1%. Required return on additional investment is 20%. Assume a 360 days year. Which of the above policies would you recommend for adoption?

Solution

Statement of Credit Policy Evaluation

Particulars	Policy A	Policy B	Policy C	Policy D	Policy E
Increase in contribution (w.n. – 1)	27,000	40,500	67,500	81,000	90,000
Increase in bad debts (w.n. – 2)	(8,400)	(16,800)	(34,500)	(43,800)	(53,000)
Increase in opp. cost (w.n. – 3)	(10,825)	(21,650)	(33,438)	(44,950)	(67,333)
Incremental Net Benefit/(loss)	**7,775**	**2,050**	**(438)**	**(7,750)**	**(30,333)**

Net benefit is higher in case of Policy A, thus Policy A is recommended to be adopted.

Working Note – 1

Variable Cost Ratio = $\frac{2.75}{5} \times 100 = 55\%$; P/V Ratio = 100 – 55% = 45%

Fixed cost = (4 – 2.75) × (15,00,000 ÷ 5) = ₹ 3,75,000

Statement of Contribution Calculation

Particulars	Existing	Policy A	Policy B	Policy C	Policy D	Policy E
Sales	15,00,000	15,60,000	15,90,000	16,50,000	16,80,000	17,00,000
Contribution @ 45%	6,75,000	7,02,000	7,15,500	7,42,500	7,56,000	7,65,000
Increase in contribution	-	27,000	40,500	67,500	81,000	90,000

Working Note - 2

Statement of Bad Debts Calculation

Particulars	Existing	Policy A	Policy B	Policy C	Policy D	Policy E
Sales	15,00,000	15,60,000	15,90,000	16,50,000	16,80,000	17,00,000

Bad Debts (in %)	1%	1.5%	2%	3%	3.5%	4%
Bad Debts (in ₹)	15,000	23,400	31,800	49,500	58,800	68,000
Increase in bad debts	-	8,400	16,800	34,500	43,800	53,000

Working Note - 3

Statement of Opportunity Cost Calculation

Particulars	Existing	Policy A	Policy B	Policy C	Policy D	Policy E
Variable cost (sales × 55%)	8,25,000	8,58,000	8,74,500	9,07,500	9,24,000	9,35,000
Fixed cost	3,75,000	3,75,000	3,75,000	3,75,000	3,75,000	3,75,000
Total cost	12,00,000	12,33,000	12,49,500	12,82,500	12,99,000	13,10,000
Average credit period	30 days	45 days	60 days	75 days	90 days	120 days
Average invest. in debtors	1,00,000	1,54,125	2,08,250	2,67,188	3,24,750	4,36,667
Increase in invest. in debtors	-	54,125	1,08,250	1,67,188	2,24,750	3,36,667
Inc. in opportunity cost @ 20%	-	10,825	21,650	33,438	44,950	67,333

Question – 2

SK corporation is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of ₹ 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is ₹ 1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Given the following information, which is the better option?

	Present Policy	Policy I	Policy II
Annual credit sales	50,00,000	60,00,000	67,50,000
Accounts Receivables turnover ratio	4 times	3 times	2.4 times
Bad debts losses	1,50,000	3,00,000	4,50,000

Solution

Statement of Credit Policy Evaluation

Particulars	Policy I	Policy II
Increase in contribution (working note – 1)	3,00,000	5,25,000
Increase in bad debts	(1,50,000)	(3,00,000)
Increase in opportunity cost (working note – 2)	(1,31,250)	(2,73,438)
Incremental Net Benefit/(loss)	**18,750**	**(48,438)**

Net benefit is higher in case of Policy I, thus Policy I is better.

Working Note - 1

Statement of Contribution Calculation

Particulars	Existing	Policy I	Policy II
Sales	50,00,000	60,00,000	67,50,000
Contribution @ 30%	15,00,000	18,00,000	20,25,000
Increase in contribution	-	3,00,000	5,25,000

Working Note - 2

Statement of Opportunity Cost Calculation

Particulars	Existing	Policy I	Policy II
Variable cost (sales × 70%)	35,00,000	42,00,000	47,25,000
Fixed cost	-	-	-
Total cost	35,00,000	42,00,000	47,25,000
Debtors turnover ratio	4	3	2.4
Average invest. in debtors	8,75,000	14,00,000	19,68,750
Increase in invest. in debtors	-	5,25,000	10,93,750
Inc. in opportunity cost @ 20%	-	1,31,250	2,73,438

Question – 3

SK Limited specializes in the manufacture of a computer component. The component is currently sold for ₹ 1,000 and its variable cost is ₹ 800. For the year 31.12.20 the company sold on an average 400 components per month. At present the company grants one month credit to its customers. The company is thinking of extending the same to two months on account of which the following is expected:

Increase in sales	25%
Increase in stock	₹ 2,00,000
Increase in creditors	₹ 1,00,000

You are required to advise the company on whether or not to extend the credit terms if:

(a) All customers avail the extended credit period of two months

(b) Existing customers do not avail the extended credit terms but only the new customers avail the same. Assume this case the entire increase in sales is attributable to the new customers.

The company expects a minimum return of 40% on the investment.

Solution

(a) Statement of Credit Policy Evaluation

Particulars	Amount
Increase in contribution [400 × 12 × 25% × (1000 – 800)]	2,40,000
Increase in opportunity cost (working note – 1)	(2,32,000)
Incremental Net Benefit	**8,000**

Due to higher net benefit, it is recommended to accept the proposal.

Working Note - 1

Statement of Opportunity Cost Calculation

Particulars	Existing	Proposed
Variable cost	800×400×12= 38,40,000	38,40,000×125%= 48,00,000
Fixed cost	-	-
Total cost	38,40,000	48,00,000
Average credit period	1 month	2 months
Average invest. in debtors	3,20,000	8,00,000
Increase in invest. in debtors (A)	-	4,80,000
Increase in stock (B)	-	2,00,000
Increase in creditors (C)	-	(1,00,000)
Increase in invt. in WC (A+B-C)	-	5,80,000
Inc. in opportunity cost @ 40%	-	2,32,000

(b) **Statement of Credit Policy Evaluation**

Particulars	Amount
Increase in contribution [400 × 12 × 25% × (1000 – 800)]	2,40,000
Increase in opportunity cost (working note – 2)	(1,04,000)
Incremental Net Benefit	**1,36,000**

Due to higher net benefit, it is recommended to accept the proposal.

Working Note - 2

Statement of Opportunity Cost Calculation

Particulars	Amount
Increase in Variable cost (400×12×25%×800)	9,60,000
Increase in Fixed cost	-
Increase in Total Cost	9,60,000
Average credit period	2 months
Increase in invest. in debtors (A)	1,60,000
Increase in stock (B)	2,00,000
Increase in creditors (C)	(1,00,000)
Increase in invt. in WC (A+B-C)	2,60,000
Inc. in opportunity cost @ 40%	1,04,000

Question – 4

A firm has a current sales of ₹ 2,56,48,750. The firm has unutilized capacity. In order to boost its sales, it is considering the relaxation in its credit policy. The proposed terms of credit will be 60 days credit against the present policy of 45 days. As a result, the bad debts will increase from 1.5% to 2% of sales. The firm's sales are expected to increase by 10%. The variable operating costs are 72% of the sales. The firm's corporate tax rate is 35%, and it requires an after tax return of 15% on its investment. Should the firm change its credit period to 60 days.

PV Ratio = 28%

Solution

Statement of Credit Policy Evaluation

Particulars	Amount
Increase in contribution [2,56,48,750 × 10% × 28% × (1 - 0.35)]	4,66,807
Increase in bad debts (w.n. – 1)	(1,16,072)
Increase in opportunity cost (w.n. – 2)	(1,61,587)
Net Benefit/(loss)	**1,88,518**

Due to ne incremental benefit, it is recommended to accept the proposal.

Working Note – 1

Statement of Bad Debts Calculation

Particulars	Existing	Proposed
Sales	2,56,48,750	2,82,13,625
Bad Debts (in %)	1.5%	2%
Bad Debts (in ₹)	3,84,731	5,64,273
Increase in bad debts	-	1,79,542
Increase in bad debts net of tax		1,79,542 × (1 - 0.35) = 1,16,072

Working Note - 2

Statement of Opportunity Cost Calculation

Particulars	Existing	Proposed
Variable cost (sales × 72%)	1,84,67,100	2,03,13,810
Fixed cost	-	-
Total cost	1,84,67,100	2,03,13,810
Average credit period	45 days	60 days
Average invest. in debtors [TC/360 × ACP]	23,08,388	33,85,635
Increase in invest. in debtors	-	10,77,247
Inc. in opportunity cost @ 15%	-	1,61,587

15%

ACP = (30 × 0.15) + (60 × 0.34) + (90 × 0.30) + (100 × 0.20)
= 71.9 days

Question – 5

Mr. S is regular customers of SK Ltd. and have approached the sellers for extension of a credit facility for enabling them to purchase goods from SK Ltd. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges in regard to Mr. S:

Schedule		Pattern
At the end of 30 days	→	15% of the bill
At the end of 60 days	→	34% of the bill
At the end of 90 days	→	30% of the bill
At the end of 100 days	→	20% of the bill
Non-recovery → B/DRS	→	1% of the bill

Mr. S want to enter into a firm commitment for purchase of goods of ₹ 15 lakhs in 2021, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is ₹ 150 on which a profit of ₹ 5 per unit is expected to be made. It is anticipated by SK Ltd., that taking up of this contract would mean an extra recurring expenditure of ₹ 5,000 per annum. If the opportunity cost of funds in the hands of SK Ltd. is 24% per annum would you as the finance manager of the seller recommend the grant of credit to Mr. S? Workings should form part of your answer. Assume year of 360 days.

Solution

ACP = (30days ×15%) + (60days ×34%) + (90 days × 30%) + (100 days × 20%) = 71.9 days

Statement showing evaluation of grant of Credit to Mr. S

Incremental Gains	
Profit on Sale $\left[\frac{1500000}{150} \times 5\right]$	50,000
Total (A)	50,000
Incremental Costs	
Extra Expenditure	5,000
Opportunity Cost $\left\{15,00,000 \times \frac{145}{150} \times \frac{71.9}{360} \times 24\%\right\}$	69,503
Increase in Bad Debts [15,00,000 × 1%]	15,000
Total (B)	89,503
Net Gain/ (Loss) (A – B)	(39,503)

It should not grant credit to slow players as it is not profitable.

Question – 6 [Payables Mgt.]

A Ltd. is in the manufacturing business and it acquires raw material from X Ltd. on a regular basis. As per the terms of agreement the payment must be made within 40 days of purchase. However, A Ltd. has a choice of paying ₹ 98.50 per ₹ 100 it owes to X Ltd. on or before 10th day of purchase.

Required to examine whether A Ltd. should accept the offer of discount assuming average billing of A Ltd. with X Ltd. is ₹ 10,00,000 and an alternative investment yield a return of 15% and company pays the invoice.

Solution

Annual benefit of accepting the discount = $\frac{1.5}{100-1.5} \times \frac{365}{40-10} \times 100 = 18.53\%$

Annual cost = Opportunity cost of foregoing interest on investment = 15%

If average invoice amount is ₹ 10,00,000.

	If discount is	
	Accepted (₹)	**Not accepted (₹)**
Payment to supplier	9,85,000	10,00,000
Return on investment of 9,85,000 for 30 days [9,85,000 × (30/365) × 15%]	-	(12,144)
	9,85,000	9,87,856

Thus, from above table it can be seen that it is cheaper to accept the discount.

Question – 7

A bank is analysing the receivables of SK Company in order to identify acceptable collateral for a short-term loan. The company's credit policy is 2/10 net 30. The bank lends 80% on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period. A schedule of SK's receivables has been prepared. How much will the bank lend on pledge of receivables, if the bank uses a 10% allowance for cash discount and returns?

Account	**Amount (₹)**	**Days outstanding in days**	**Average payment period historically**
74	25,000	15	20
91	9,000	45	60
107	11,500	22	24
108	2,300	9	10
114	18,000	50	45
116	29,000	16	10
123	14,000	27	48
	1,08,800		

Solution

Credit policy of the company is 2/10 net 30. Thus, as per the terms given in question, an overdue situation will arise if the average payment period is more than 40 days or days outstanding is more than 30 days. On the basis of this,

- Account no. 91 and 114 are currently overdue due to days outstanding is more than 30 days.
- Account no. 123 is overdue due to average payment period is above 40 days.

Therefore, Account no. 74, 107, 108 and 116 are considered for lending decision.

Calculation of amount lend by the bank on pledge of receivables

Account No.	Amount (₹) (A)	90% of amount (B = A × 90%)	Loan amount (B × 80%)
74	25,000	22,500	18,000
107	11,500	10,350	8,280
108	2,300	2,070	1,656
116	29,000	26,100	20,880
		Total loan amount	**48,816**

Question – 8

A factoring firm has offered a company to buy its accounts receivables. The relevant information is given below:

(i) The current average collection period for the company's debt is 80 days and ½% of debtors default. The factor has agreed to pay over money due to the company after 60 days and it will suffer all the losses of bad debts also.

(ii) Factor will charge commission @2%.

(iii) The company spends ₹ 1,00,000 p.a. on administration of debtor. These are avoidable costs.

(iv) Annual credit sales are ₹ 90 lakhs. Total variable costs is 80% of sales. The variable costs is 80% of sales. The company's cost of borrowing is 15% per annum. Assume 365 days in a year.

Should the company enter into agreement with factoring firm?

Solution

Presently, the debtors of the company pay after 80 days. However, the factor has agreed to pay after 60 days only. So, the investment in debtors will be reduced by 20 days. The annual charge in cash flows through entering into a factoring agreement is:

Particulars	₹
Factoring commission (90,00,000 × 2%)	(1,80,000)
Administration cost saved	1,00,000
Bad debts saved (90,00,000 × 0.50%)	45,000
Interest saving [{(90,00,000 × 80/365) – (90,00,000 × 60/365)} × 80% × 15%]	59,178
Net Benefit	**24,178**

Recommended to enter into factoring agreement as it will provide annual benefit of ₹ 24,178.

Question – 9

The turnover of SK Ltd. is ₹ 120 lakhs of which 75% is on credit. The variable cost ratio is 80%. The credit terms are 2/10, net 30. On the current level of sales, the bad debts are 1%. The company spends ₹ 1,20,000 per annum on administering its credit sales. The cost includes salaries of staff who handle credit checking, collection etc. these are avoidable costs. The past experience indicates that 60% of the

customers avail of the cash discount, the remaining customers pay on an average 60 days after the date of sale.

The book debts (receivables) of the company are presently being financed in the ratio of 1:1 by a mix of bank borrowings and owned funds which cost per annum 15 per cent and 14 per cent respectively.

A factoring firm has offered to buy the firm's receivables. The main elements of such deal structured by the factor are:

(a) Factor reserve, 12 per cent

(b) Guaranteed payment – 25 days

(c) Interest charges, 15 per cent, and

(d) Commission 4% of the value of receivables

What advice would you give to SK Ltd. – whether to continue with the in-house management of receivables or accept the factoring firm's offer? Assume 360 days in a year.

Solution

Credit sales = 120 lakhs × 75% = ₹ 90 lakhs

Existing Average collection period = (0.60 × 10) + (0.40 × 60) = 30 days

Statement of cost for In-house System

Particulars	Amount (₹)
Administration expenses	1,20,000
Bad debts (90,00,000 × 1%)	90,000
Discount (90,00,000 × 60% × 2%)	1,08,000
Opportunity cost (working note – 1)	87,000
Total Cost	**4,05,000**

Working Note - 1

Cost of own fund = $90,00,000 \times 80\% \times \frac{30}{360} \times \frac{1}{2} \times 14\%$ = ₹ 42,000

Cost of bank fund = $90,00,000 \times 20\% \times \frac{30}{360} \times \frac{1}{2} \times 15\%$ = ₹ 45,000

= ₹ 87,000

Statement of cost of factoring proposal

Particulars	Amount (₹)
Factoring commission (90,00,000 × 4%)	3,60,000
Interest charges [(90,00,000 – 3,60,000 – 10,80,000) = 75,60,000 × $\frac{25}{360}$ × 15%]	78,750
Cost of own funds [(90,00,000 – 75,60,000 – 78,750) × $\frac{25}{360}$ × 14%]	13,234
Total Cost	**4,51,984**

Net loss due to factoring = 4,51,984 – 4,05,000 = ₹ 46,984

Since there is net loss due to factoring, so it is not recommended to accept the proposal.

Question – 10

The Alliance Ltd. a Petrochemical sector company had just invested huge amount in its new expansion project. Due to huge capital investment, the company is in need to an additional ₹ 1,50,000 in working capital immediately. The finance Manager has determined the following three feasible sources of working capital funds:

(i) Bank Loan: The company's bank will lend ₹ 2,00,000 at 15%. A 10% compensating balance will be required, which otherwise would not be maintained by the company.

(ii) Trade Credit: The company has been offered credit terms from its major supplier of 3/30, net 90 for purchasing raw materials worth ₹ 1,00,000 per month.

(iii) Factoring: A factoring firm will buy the company's receivables of ₹ 2,00,000 per month, which have a collection period of 60 days. The factor will advance up to 75% of the face value of the receivables at 12% on an annual basis. The factor will also charge commission of 1% on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expenses and bad debt expense of ₹ 1,250 and ₹ 1,750 per month respectively.

On the basis of annual percentage cost, advise which alternative should the company select? Assume 360 days year.

Solution

(i) Bank Loan

Loan amount = ₹ 2,00,000; Usable amount = ₹ 2,00,000 × 90% = ₹ 1,80,000

Real annual cost = $\frac{Interest}{Funds\ available} \times 100 = \frac{(2,00,000 \times 15\%)}{1,80,000} \times 100$ = 16.67% p.a.

(ii) Trade Credit

In this case, discount will not be taken which will cost = $\frac{3}{(100-3)} \times \frac{360}{60} \times 100$ = 18.56% p.a.

(iii) Factoring

Amount available for advance = 2,00,000 × 75% = ₹ 1,50,000

Commission charges = 2,00,000 × 12 × 2% = ₹ 48,000

Annual interest cost = ₹ 1,50,000 × 12% = ₹ 18,000

Savings per year = (1,250 + 1,750) × 12 = ₹ 36,000

Net factoring cost per year = 48,000 + 18,000 – 36,000 = ₹ 30,000

Effective cost of factoring = $\frac{30,000}{1,50,000} \times 100$ = 20% p.a.

Advise: The company should select bank loan alternative as it has the lowest annual cost.

Receivables Management

MCQs

Q(1). The credit terms may be expressed as '3/15 net 60". This means that a 3% discount will be granted if the customer pays within 15 days, if he does not avail the offer, he must make payment within 60 days.

A. I agree with the statement
B. I do not agree with the statement
C. I cannot say
D. None of the above

Q(2). The term 'net 50' implies that the customer will make payment:

A. Exactly on 50th day
B. Before 50th day
C. Not later than 50th day
D. None of the above

Q(3). Factoring is a method of financing whereby a firm sells its trade debts at a discount to a financial institution. The statement is:

A. Correct
B. Incorrect
C. Partially correct
D. I cannot say

Q(4). A factoring arrangement can be both with recourse as well as without recourse:

A. True
B. False
C. Partially correct
D. Cannot say

Q(5). When a firm advises its customers to mail their payments to special Post Office collection centres, the system is known as:

A. Concentration banking
B. Lock Box system
C. Playing the float
D. None of the above

Q(6). Receivables arise -

(1) If the goods are sold on credit.
(2) If the goods are sold on cash
(3) If the services are rendered on credit
(4) If the services are rendered on cash.

Select correct answer from the options given below:

A. 1 only
B. 1 & 2
C. 1 & 3
D. All 1 to 4

Q(7). 80% of sales of ₹ 10,00,000 of a firm are on credit. It has a Receivable Turnover of 8. What is the Average collection period (360 days a year) and Average Debtors of the firm?

A. 45 days and ₹ 1,00,000
B. 360 days and ₹ 1,00,000
C. 45 days and ₹ 8,00,000
D. 360 days and ₹ 1,25,000

$ACP = \frac{360}{8} = 45$ days

Avg. Debt. $= \frac{(10l \times 80\%)}{8} = 1l$ or $\frac{(10l \times 80\%)}{360} \times 45 = 1l$

Scope & Objectives of Financial Management

MCQs

Q(1). Focus of financial management is mainly concerned with the decision related to:
A. Financing
B. Investing
C. Dividend
D. All of above

Q(2). The main objective of financial management is to:
A. Secure profitability
B. Maximize shareholder wealth
C. Enhancing the cost of debt
D. None of above

Q(3). The shareholder value maximisation model holds that the primary goal of the firm is to maximise its:
A. Accounting profit
B. Liquidity
C. Market value
D. Working capital

Q(4). Wealth maximisation approach is based on the concept of:
A. Cost benefit analysis
B. Cash flow approach
C. Time value of money
D. All of the above

Q(5). Management of all matters related to an organisation's finances is called:
A. Cash inflows and outflows
B. Allocation of resources
C. Financial management
D. Finance

Q(6). Which of the following is the disadvantage of having shareholders wealth maximisation goals?
A. Emphasizes the short-term gains
B. Ignores the timing of returns
C. Requires immediate resources
D. Offers no clear relationship between financial decisions and share price

Q(7). The most important goal of financial management is:
A. Profit maximisation
B. Matching income and expenditure
C. Using business assets effectively
D. Wealth maximisation

Q(8). To achieve wealth maximization, the finance manager has to take careful decision in respect of:
A. Investment
B. Financing
C. Dividend
D. All of the above

Q(9). Early in the history of finance, an important issue was:
A. Liquidity
B. Technology
C. Capital structure
D. Financing options

Q(10). Which of the following are microeconomic variables that help define and explain the discipline of finance?
A. Risk and return
B. Capital structure
C. Inflation
D. All of the above

Q(11). Financial management is mainly concerned with the-
A. Acquiring and developing assets to forfeit its overall benefit
B. Acquiring, financing and managing assets to accomplish the overall goal of a business enterprise
C. Efficient management of the business
D. Sole objective of profit maximization

Q(12). Which of the following need not be followed by the finance manager for measuring and maximising shareholder's wealth?
A. Accounting profit analysis
B. Cash flow approach
C. Cost benefit analysis
D. Application of time value of money