ACCOUNTING RATIOS.

TO BE DISCUSSED.

(Q1).

Balance sheet of MN Ltd as on 31.3.16.

Liabilities	₹	Assets		₹
Net worth		Fixed Assets		1000000
Equity share capital	600000			
Reserves & surplus	70000			
9% preference share	200000	Current Assets		
		stock	4,20000	
Borrowed Funds	580000	others	330000	750000
Current liabilities	300000			
	1750000			1750000

→ Net working capital = CA − CL

1.5 = 2.5 − 1

4,50000 CA = 750000

CL = 300000

→ $ROTA = \frac{NPAT}{TA} \times 100$

$15\% = \frac{NPAT}{1750000} \times 100$

NPAT = 262500

→ D + E = CE

↓ ↓

BF OF = CE

1 + 1.5 = 2.5

? 14,50000

$\frac{14,50000 \times 1}{2.5} = 580000 \rightarrow BF$

$870000 \rightarrow OF$

→ Total Asset T/O Ratio = $\frac{\text{Sales}}{\text{TA}}$

$$2 = \frac{\text{sales}}{1750000}$$

$$\text{sales} = 3500000$$

→ Stock Turnover Ratio = $\frac{\text{COGS}}{\text{Avg stock}}$

$$7 = \frac{\text{sales} - \text{GP}}{\frac{\text{op} + \text{cl}}{2}}$$

$$7 = \frac{3500000 - 20\%}{\frac{380000 + n}{2}}$$

$$7 = \frac{2800000}{\frac{380000 + n}{2}}$$

$$7 = \frac{5600000}{380000 + n}$$

$$n = 420000$$

→ Quick Ratio = $\frac{\text{CA} - \text{stock} - \text{prepaid}}{\text{CL}}$

$$= \frac{750000 - 420000}{300000}$$

$$= 1.1 : 1$$

→ Fixed Asset T/O = $\frac{\text{sales}}{\text{FA}}$

$$= \frac{3500000}{1000000}$$

$$= 3.5 \text{ times}$$

→ Proprietary RATIO = $\frac{\text{Prop Funds}}{\text{FA}}$

$= \frac{870000}{1750000}$

$= 0.497 : 1$

→ EPS = $\frac{\text{Earnings for Eq shholders}}{\text{NO of shares}}$

$= \frac{244500}{60000}$ [NPAT − PD]

$= 4.075$

→ PIE Ratio = $\frac{\text{MPS}}{\text{EPS}}$

$= \frac{16}{4.075}$

$= 3.92$ times

(Q2).

Balance sheet of SONA Ltd

Liabilities		£	Assets		£
Equity share capital		575000	Fixed Assets		685000
Reserves & surplus		260000			
			Current Asset		
Current liabilities			Stock	210000	
Bank O/D	200000		Debtors	175000	
Other CL	100000	300000	Cash	65000	450000
		1135000			1135000

→ WC = CA − CL

0.5 = 1.5 − 1

↓ = ?

150000 = 450000 − CL

CL = 300000

→ QR = (QA − Stock) / CL

0.8/1 = (450000 − x)/300000 assumed Bank O/D as CL

210000

→ Inventory T/O Ratio = COGS / Stock

5 = x/210000

x = 1050000

Sales	100	1400000
(−) COGS	75	(1050000)
GP	25	350000

→ Avg collection period → R&S/C = 4/1

1.5 = 12/1400000

n = 175000

R&S/65000 = 4/1

R&S = 260000

classmate
Date
Page

(Q3).

→ ITR = $\frac{\text{COGS}}{\text{Avg stock}}$

$= \frac{20860}{\frac{2867+2407}{2}}$

$= \frac{20860}{2637} = 7.91$

→ ROCE = $\frac{\text{EBIT}}{\text{Avg cap employed}} \times 100$

$= \frac{170}{5254} \times 100 = 3.23\%$

→ ROE = $\frac{\text{NP for shareholders}}{\text{ESHF}} \times 100$

$= \frac{34}{2377} \times 100$

$= 1.43\%$

→ Avg collection Period.

$= \frac{365}{22165} \times 1332$

$= 21.9 \text{ days}$

$= 22 \text{ days}$

(Q1).

Balance sheet as at 31.3.16

Liabilities	£	Assets		£
Equity share capital	400000	Plant & Machinery & other fixed Assets		425000
Reserves & surplus	600000			
current liabilities	500000			
		current Assets		
		Inventory	700000	
		Debtors	333333	
		Cash	41667	1075000
	1500000			1500000

→ Total Debt to Net worth.

$$\frac{TD}{SF} = \frac{1}{2}$$

$$TD = 1000000 \times \frac{1}{2}$$

$$= 500000$$

→ Total asset TO $= \frac{\text{Sales}}{TA}$

$$2 = \frac{\text{sales}}{1500000}$$

$$\text{sales} = 3000000$$

→ GP = 30% of sales

= 900000

∴ COGS = 2100000

→ Avg collection period

$$= \frac{\text{Avg Drs}}{\text{or sales}} \times 100$$

classmate
Date
Page

$$40 = \frac{Debs}{3000000} \times 360$$

$$Debs = 333333$$

→ Inventory T/O Ratio $= \frac{COGS}{Cl\ Stock}$

$$3 = \frac{2100000}{Cl\ Stock}$$

$$Cl\ Stock = 700000$$

→ Acid test ratio $= \frac{CA - Stock - PP}{CL}$

$$0.75 = \frac{CA - 700000 - NIL}{500000}$$

$$CA = 1075000$$

(Q2).

Balance sheet

Liabilities	£	Assets		£
Shareholders fund	600000	Fixed Assets		792000
long term debt	240000	Cash	42000	
		Debtors	12000	
Creditors	60000	Inventory	54000	108000
	900000			900000

→ long term debt to Equity

$$= \frac{LTD}{SF} \times 100$$

$$40 = \frac{LTD}{600000} \times 100$$

$$LTD = 240000$$

→ GP Margin

$$= \frac{GP}{sales} \times 100$$

$$20 = \frac{54000}{sales} \times 100$$

$$Sales = 270,000$$

→ Credit sales = 80% of total sales

$$= 0.8 \times 270000$$

$$= 216000$$

→ Avg collection Period.

$$= \frac{Avg\ Debtors}{Cr\ sales} \times 360$$

$$20 = \frac{Dr}{216000} \times 360$$

$$Dr = 12000$$

→ Inventory TIO Ratio = $\frac{COGS}{Avg\ stock}$

$$4 = \frac{216000}{stock}$$

$$stock = 54000$$

→ Total Asset TIO = $\frac{Sales}{TA}$

$$0.3 = \frac{270000}{TA}$$

$$TA = 900000$$

→ Current Ratio = $\frac{CA}{CL}$

$$1.8 = \frac{CA}{60000}$$

$$CA = 108000$$

(Q3).

→ Average Inventory.

Stock turnover Ratio = $\frac{COGS}{Avg\ stock}$

$6 = \frac{2250000}{Avg\ stock}$

Avg stock = 3,75,000

Sales	3000000
(-) GP	(750000)
COGS	2250000

→ Purchases

COGS	2250000
+ cl stock	415000
(-) Op stock	(335000)
Purch.	2330000

WN:

$Avg\ stock = \frac{Op + Cl}{2}$

$375000 = \frac{x + x + 80000}{2}$

x = Op stock = 335000

cl stock 415000

→ $Avg\ Debtors = \frac{Cr\ sales}{Avg\ drs}$

$Deb\ TO$

$8 = \frac{2400000}{Avg\ drs}$

Avg drs = 300000

WN:

Cash	+	Cr	=	Total sales
25		100	=	125
?				3000000
		2400000.		

→ Avg creditors

Crs T/O RATIO = Cr Purch. / Avg crs.

10 = 2330000 − 230000 / Avg crs.

Avg crs = 210000

→ Avg paymt period

= 12 / cr T/O RATIO

= 12 / 10

= 1.2m

→ Avg collection period

= 12 / Rec T/O RATIO

= 12 / 8

= 1.5m

→ current Assets & current liabilities

CA − CL = WC

2.4 − 1 = 1.4

? ? 280000

CA = 480000

CL = 200000

(Q4)

→ Inventory T/O Ratio

$$= \frac{COGS}{Avg\ stock}$$

$$5 = \frac{640000 - 15\%}{Avg\ stock}$$

$\therefore$ Avg stock = 108800

→ Avg collection period

$$\frac{Avg\ Drs}{Cr\ sales} \times 360$$

$$\frac{128000}{640000} \times 360$$

= 72 days

WN:

① $\frac{CA}{CL} = 2.5$

$\frac{CA}{96000} = 2.5$

CA = 240000

Inv	Cash	Drs
48000	16000	176000

② Avg Drs

$$\frac{80000 + 176000}{2}$$

$$= 128000$$

classmate
Date
Page

(Q5).

Balance sheet

Assets	£	Liabilities	£
Cash	50685	Notes & Payables	100000
A/R.	49315	long term debt	100000
Inventory	100000	Common stock	100000
Plant & Equipment	200000	Retained Earning	100000
	400000		400000

① LTD to Net worth

$\frac{LTD}{SF} = 0.5$

$LTD = 0.5 \times 200000$

$LTD = 100000$

② Total Asset TIO

$= \frac{sales}{TA}$

$2.5 = \frac{sales}{400000}$

$sales = 1000000$

③ Collection Period

$\frac{Avg\ Drs}{Cr\ sales} \times 365$

$18 = \frac{Drs}{1000000} \times 365$

$Drs = 49315$

④ Inventory TIO

$= \frac{COGS}{Avg\ stock}$

$9 = \frac{1000000 - 10\%}{Avg\ stock}$

$stock = 100000$

⑤ Acid Test Ratio

$\frac{CA - stock - Prepaid}{Current\ Liab}$

$1 = \frac{CA - 100000}{100000}$

$CA = 200000$

Drs 49315 + stock 100000 + cash 50685

LEVERAGES

TO BE DISCUSSED.

Q1.

Income statement

	Sales	100	42,00,000	100
(-)	variable cost	74.45	(31,26,900)	74.45
	contribution	25.55	10,73,100	25.55
(-)	Fixed cost		(3,48,000)	
	Profit / EBIT		7,25,100	
(-)	Interest		(2,03,500)	
	EBT		5,21,600	
(-)	Tax @ 35%		(1,82,560)	
	EAT / Profit avail for Esh.		3,39,040	

(i) → Operating leverage = $\frac{\text{contribution}}{\text{EBIT}}$

$= \frac{10,73,100}{7,25,100}$

$= 1.48 : 1$

(ii) → ~~Combined~~ Financial leverage = $\frac{\text{EBIT}}{\text{EBT}}$

$= \frac{7,25,100}{5,21,600}$

$= 1.39 : 1$

(iii) → Earning Per share = $\frac{\text{EAT}}{\text{No of shares}} = \frac{3,39,040}{2,50,000} = 1.35616$

(iv) → combined leverage = OL x FL

$= 1.48 \times 1.39$

$= 2.0572$

Q2.

		SI		SII	
		A	B	A	B
	Sales	90,000	90,000	90,000	90,000
(-)	Variable cost	(45,000)	(45,000)	(45,000)	(45,000)
	Contribution	45,000	45,000	45,000	45,000
(-)	Fixed cost	(15,000)	(15,000)	(20,000)	(20,000)
	EBIT	30,000	30,000	25,000	25,000
(-)	Interest	(2,000)	(1,000)	(2,000)	(1,000)
	EBT.	28,000	29,000	23,000	24,000
OL =	Contn / EBIT	45,000 / 30,000	45,000 / 30,000	45,000 / 25,000	45,000 / 25,000
		1.5	1.5	1.8	1.8
FL =	EBIT / EBT.	30000 / 28000	30000 / 29000	25000 / 23000	25000 / 24000
		1.07	1.03	1.09	1.04
CL =	OL x FL	1.5 x 1.07	1.5 x 1.03	1.8 x 1.09	1.8 x 1.04
		= 1.605	= 1.545	= 1.962	= 1.872

HOMEWORK . SECTION .

Q1.

	Sales	150	60,00,000
(-)	variable cost	100	(40,00,000)
	Contribution		20,00,000
(-)	Fixed cost		(5,00,000)
	EBIT		15,00,000
(-)	Interest		(3,30,000)
	EBT.		11,70,000

(i) Operating leverage = $\frac{\text{Contribution}}{\text{EBIT}}$

$= \frac{20,00,000}{15,00,000}$

$= 1.33 : 1$

(ii) Financial leverage = $\frac{\text{EBIT}}{\text{EBT}}$

$= \frac{15,00,000}{11,70,000}$

$= 1.28 : 1$

(iii) Combined leverage = OL x FL

$= 1.33 \times 1.28$

$= 1.7024$

Q2.

		Company A		Company B.
Sales		91,000		1,05,000
(-) variable cost		(56,000)		(63,000)
Contribution		35,000	4	42,000
(-) Fixed cost		(20,000)	(3)	(31,500)
EBIT	5	15000	1	10,500
(-) Interest	(4)	(12,000)		(9,000)
EBT	1	3,000		1,500
(-) Tax		(900)		(450)
EAT.		2,100		1,050

WIN:

→ Company A

$$FL = \frac{EBIT}{EBT} = 5$$

$$\therefore EBIT = EBT \times 5$$

→ Company B.

$$OL = \frac{Cont^n}{EBIT} = 4.$$

$$Cont^n = 4 \times EBIT$$

Classmate
Date
Page

(Q3).

		P	Q	R
	Sales	18,75,000	8,75,000	75,00,000
(-)	variable cost	(12,50,000)	(2,50,000)	(56,25,000)
	Contribution	6,25,000	6,25,000	18,75,000
(-)	Fixed cost	(5,00,000)	(2,50,000)	(10,00,000)
	EBIT	1,25,000	3,75,000	8,75,000
(-)	Interest	(75,000)	(25,000)	(7,50,000)
	EBT.	50,000	3,50,000	1,25,000

OL = Contn / EBIT. = 6,25,000 / 1,25,000 = 5:1 ; 6,25,000 / 3,75,000 = 1.67:1 ; 18,75,000 / 8,75,000 = 2.14:1

FL = EBIT / EBT = 1,25,000 / 50,000 = 2.5:1 ; 3,75,000 / 3,50,000 = 1.07:1 ; 8,75,000 / 1,25,000 = 7:1

CL = OL x FL = 5 x 2.5 = 12.5 ; 1.67 x 1.07 = 1.7869 ; 2.14 x 7 = 14.98

(Q4)

	60000 units	50000 units.
Sales	7,20,000	6,00,000
(-) variable cost	(4,80,000)	(4,00,000)
Contribution	2,40,000	2,00,000
(-) Fixed cost	(1,00,000)	(1,00,000)
EBIT.	1,40,000	1,00,000
(-) Interest	(50,000)	(50,000)
EBT.	90,000	50,000
(-) Tax @30%	(27,000)	(15,000)
EAT	63,000	35,000
No of eq sh.	5000	5000
EPS.	12.60	7.

(i) Percentage decrease in EPS.

$$= \frac{5.60}{12.60} \times 100 = \underline{44.44\%}$$

(ii) $OL = \frac{Cont^n}{EBIT}$ $\quad \frac{240000}{1,40,000}$ $\quad \frac{2,00,000}{1,00,000}$

$= \underline{1.71}$ $\quad = \underline{2}$

(iii) $FL = \frac{EBIT}{EBT.}$ $\quad \frac{1,40,000}{90000}$ $\quad \frac{1,00,000}{50,000}$

$= \underline{1.56}$ $\quad = \underline{2}$

(Q5)

	Sales	40,00,000
(-)	variable cost	(25,00,000)
	Contribution	15,00,000
(-)	Fixed cost	(6,00,000)
	EBIT.	9,00,000
(-)	Interest	(3,00,000)
	EBT.	6,00,000

$$OL = \frac{\text{Contn}}{\text{EBIT}} = \frac{15,00,000}{9,00,000} = \underline{1.67:1}$$

$$FL = \frac{\text{EBIT}}{\text{EBT}} = \frac{9,00,000}{6,00,000} = \underline{1.50:1}$$

(Q6)

	Sales	100	48000
(-)	Variable cost	75	(36000)
	Contribution	25	12000
(-)	Fixed cost	~~[illegible]~~	(8000)
	EBIT	2	4000
(-)	Interest	(1)	(2000)
	EBT.	1	2000
(-)	Tax @ 30%.		(600)
	EAT.		1400

$FL = \frac{EBIT}{EBT}$

$OL = \frac{Contn}{EBIT}$

$2 = \frac{EBIT}{EBT}$

$3 = \frac{Contn}{4000}$

$EBIT = 2 \times EBT.$

$Contn = 12000$

CAPITAL STRUCTURE

classmate Date Page

TO BE DISCUSSED.

(Q1)

Step 1: Summary of Financial Plans.

Particulars	Plan I	Plan II	Plan III	Plan IV
ESC	600000	400000	300000	300000
Debt	–	200000	300000	–
PSC	–	~~600000~~	–	300000
Total	600000	600000	600000	600000
NO of Esh	160000	140000	130000	130000
EBIT	400000	400000	400000	400000
(-) Int	–	(24000)	(27000)	–
EBT	400000	376000	373000	400000
(-) Tax 40%	160000	(150400)	(149200)	(160000)
EAT.	240000	~~22~~5600	223800	240000
(-) PD.	–	–	–	(18000)
NP for Esh	240000	~~22~~5600	223800	222000
÷ No of Esh	160000	140000	130000	130000
EPS	1.5	~~0.15~~ 1.61.	1.72	1.71
FL				
EBIT	1	1.0638	1.0724	1.0811
EBIT-PD/(1-t)	[4L/(4L-0)]	[4L/(376000-0)]	[4L/(373000-0)]	[4L/(4L-180/0)]

(Q2)

	Sales	90,00,000
(−)	VC	(54,00,000)
	Contn	36,00,000
(−)	FC	(10,00,000)
	EBIT	26,00,000
(−)	Int	(4,80,000)
	EBT	21,20,000
(−)	Tax @ 30%	(6,36,000)
	EAT	14,84,000
	No of eq sh.	4,00,000
	EPS	3.71

$$OL = \frac{Contn}{EBIT} = 1.3846$$

$$FL = \frac{EBIT}{EBT} = 1.2264$$

$$CL = OL \times FL = 1.6981$$

(ii) $EPS = \frac{(EBIT - Int)(1-t)}{No\ of\ eqsh}$ → when EPS = 0, it is BEP

∴ EBIT = 4,80,000

→ $4 = \frac{(EBIT - 480000)(1-0.3)}{400000}$

∴ EBIT = 27,65,714.

→ $2 = \frac{(EBIT - 480000)(0.7)}{400000}$

∴ EBIT = 16,22,857

(Q3).

	PI	PII
E	–	1,60,00,000
15% D	1,60,00,000	–
Total	1,60,00,000	1,60,00,000
No of ES	50	60
	(50+0)	(50+10)

Est EBIT x Prob = Expected EBIT / Avg EBIT.

250	x	0.1	=	25
450	x	0.3	=	135
540	x	0.5	=	270
630	x	0.1	=	63
				493

EBIT		493	493
a) Int			
	Old	50	50
	New	24	
	EBT	419	443
b)	Tax	217	229.25
	EAT	202	213.75/214.
÷	No of ES.	50	60
	EPS	4.04	3.57
		✓	

Conclusion:

Plan A should be selected because EPS is maximum.

HOMEWORK

(Q1).

	I	II.
15% Debenture	100000	-
Equity shares.	100000	200000
	200000	200000

(i)(a). Indiff point

$$EPS = EPS$$

$$\frac{(EBIT-I)(1-t)}{\text{No of eqsh}} = \frac{EBIT(1-t)}{\text{No of eqsh}}$$

$$\frac{(EBIT-15000)(1-0.35)}{1000} = \frac{EBIT(1-0.35)}{2000}$$

$$2EBIT - 30000 = EBIT$$

$$\therefore EBIT = 30,000.$$

(b)	I	II
EBIT.	30000	30000
(-) Int	(15000)	-
EBT.	15000	30000
(-) Tax @35%.	(5250)	(10500)
EAT.	9750	19500
No of eqsh	1000	2000
EPS	9.75	9.75

Since both plans have the same EPS the IP is ₹30000

(ii) Income statement

sales	200000
(-) V.C	(100000)
Contn	100000
(-) FC	(50000)
EBIT.	50000

Since the EBIT level 50,000 is greater than the indifference pt 30000 Plan I i.e debt 100000 & equity 100000 should be selected since it will result in higher EPS & higher share holder. ∵ Beyond IP, debt advantage ∴ select the plan having debt in it

EPS for this plan will be as under

EBIT	50,000
(-) Int	(15000)
EBT	35000
(-) Tax @ 35%	(12250)
EAT.	22750
No of eq sh	1000
EPS	22.75

(iii) If sales increase by 20%.

$$DCL = \frac{Contn}{EBIT - \frac{PD}{1-t}}$$

$$= \frac{100000}{35000}$$

$$= 2.857$$

% Δ in sales	% Δ in EPS
1	2.857
20	?
	57.142%

Revised EPS

= 22.75 + 57.142% of 22.75

= £35.75

(Q2).

	I	II.
12% Term loans	3	
Equity	1.5	4.5 (assumed)
	4.5	4.5

Indifference point

$$EPS = EPS.$$

$$\frac{(EBIT - Int)(1-t)}{\text{No of eq sh}} = \frac{(EBIT)(1-t)}{\text{No of eq sh.}}$$

$$\frac{(EBIT - 0.36)(1-0.5)}{0.15_1} = \frac{EBIT(1-0.5)}{0.45_3}.$$

$$3EBIT - 1.08 = EBIT.$$

$$\therefore EBIT = 0.54.$$

(Q3).

EPS (I) = EPS (II)

$$\frac{(EBIT - Int)(1-t)}{\text{No of eq sh}} = \frac{EBIT(1-t) - PD}{\text{No of eq sh}}$$

$$\frac{(240000 - 24000)(1-0.3)}{40000} = \frac{(240000)(1-0.3) - PD}{40000}$$

$$151200 = 168000 - PD$$

$$\therefore PD = 16800$$

$$\therefore \text{Rate of div on pref sh} = \frac{16800}{200000} \times 100$$

$$= 8.4\%.$$

COST OF CAPITAL

TO BE DISCUSSED.

Q1.

Calculation of WACC of the company.

Sources of Funds	Amt	Prop	After Tax COC	WACC
Equity share capital.	6500,000	0.62	16.30%	10.106
12% Preference share capital	12,00,000	0.11	12%	1.32
15% Redeemable debentures.	20,00,000	0.19	10.5%	1.995
10% convertible debentures	8,00,000	0.08	7%	0.56
	1,05,00,000	1		13.981

(15%)

$$Kd = \frac{Int\,(1-t)}{NP} \times 100 \qquad Kp = \frac{PD(1+DDT)}{NP} \times 100$$

$$\frac{300000(1-0.3)}{2000000} \times 100 \qquad \frac{144000(1+0)}{1200000} \times 100$$

$$= 10.5\% \qquad 12\%$$

(12%)

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

$$= \frac{80000(1-0.3)}{800000} \times 100$$

$$= 7\%$$

(Q2).

(a) Calculation of WACC using Book value weights

Sources of Funds	Amt	Prop	After Tax COC	WACC
Equity share capital	45,000	0.45	14%	6.3
Retained Earning	15,000	0.15	14%	2.1
Preference share capital.	10,000	0.10	10%	1
Debentures	30,000	0.30	5%	1.5
	1,00,000	1		10.9

(b) Calculation of WACC using Market value weights

Sources of Funds	Amt	Prop	After Tax COC	WACC
Equity share capital	90,000	0.64	14%	8.96
Preference share capital.	15,000	0.11	10%	1.1
Debentures	35,000	0.25	5%	1.25
	1,40,000	1		11.31

(Q3)

(a) calculation of WACC using BOOK value weights

Sources of Funds	Amt	Prop	After Tax COC	WACC
Ordinary shares	40,00,000	0.5	17%	8.5
10% Preference shares	10,00,000	0.125	10%	1.25
14% Debentures	30,00,000	0.375	7%	2.625
	80,00,000	1		12.375

$$Ke = \frac{D1}{Po} \times 100 + g$$

$$\frac{2}{20} \times 100 + 7$$

$$= 17\%$$

$$Kp = \frac{PD(1+DDT)}{NP} \times 100$$

$$\frac{10(1+0)}{100} \times 100$$

$$= 10\%$$

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

$$\frac{14(1-0.5)}{100} \times 100$$

$$7\%$$

(b) calculation of WACC using Market value weights.

Sources of funds	Amt	Rwp	After Tax COC	WACC
Ordinary shares	4000000	0.4	27%	10.8
10% preference share capital	1000000	0.1	10%	1
14% Debenture	3000000	0.3	7%	2.1
15% Debenture	2000000	0.2	7.5%	1.5
	10,000,000	1		15.4

$$Ke = \frac{D1}{Po} \times 100 + g$$

$$= \frac{3}{15} \times 100 + 7$$

$$= 27$$

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

$$\frac{15(1-0.5)}{100} \times 100$$

$$7.5$$

(c) Calculation of WACC using Book value weights

Sources of Funds	Amt	Prop	After tax COC	WACC
Ordinary shares	4000000	0.4	30%	12
10% Preference share capital	1000000	0.1	10%	1
15% Debenture	2000000	0.2	7.5%	1.5
14% Debenture	3000000	0.3	7%	2.1
	10000000	1		16.6

$$Ke = \frac{D1}{P0} \times 100 + g.$$

$$\frac{3}{15} \times 100 + 10$$

30%.

classmate
Date
Page

(Q4).

		Existing	P I	P II
		D = 0	D = 600000	D = 1000000
		Ke = 16%	Ke = 17%	Ke = 20%
	EBIT	300000	300000	300000
(-)	Int	—	(60000)	(120000)
	EBT/Div.	300000	240000	180000
①	MV of firm			
	MV of D	0	600000	1000000
	+	+	+	+
	MV of E	1875000	14,11,765	9,00,000
	$\left[\frac{Div}{Ke}\right]$	$\left[\frac{3L}{16\%}\right]$	$\left[\frac{2.4L}{17\%}\right]$	$\left[\frac{1.8L}{20\%}\right]$
		18,75,000	20,11,765	19,00,000
②	$K_O = \frac{EBIT}{MV\ of\ Firm} \times 100$	$\frac{3L}{1875000} \times 100$	$\frac{3L}{2011765} \times 100$	$\frac{3L}{1900000} \times 100$
		16%	14.91%	15.78%

Concl:

Optimum capital structure = Plan I
i.e debt upto the 30% should be preferred
In such a situation overall cost is minimum.

HOMEWORK

(Q1).

calculation of WACC using market value weights.

Sources of Funds	Amt	Prop	After Tax COC	WACC
Equity share capital	60,00,000	0.6 ~~0.33~~	17%	10.2 ~~5.61~~
12% Preference shares	10,00,000	0.1	12%	1.2 ~~2.04~~
9% Debentures	30,00,000	~~0.3~~	5.4%	1.62 ~~2.7~~
	1,00,00,000	1		~~10.35~~ 13.02

$$Ke = \frac{P_1}{P_0} \times 100 + g$$

$$\frac{3}{30} \times 100 + 7$$

$$= 17\%$$

$$Kp = \frac{PDC(1+DDT)}{NP} \times 100$$

$$\frac{1200000(1+0)}{1000000} \times 100$$

$$= 12\%$$

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

$$\frac{270000(1-0.4)}{3000000} \times 100$$

$$5.4\%$$

(Q2)

$$K_p = \frac{PD(1+DDT) + \left[\frac{RV-NP}{n}\right]}{\left[\frac{RV+NP}{2}\right]} \times 100$$

$$\frac{12(1+0) + \left[\frac{110-103}{10}\right]}{\left[\frac{110+103}{2}\right]} \times 100$$

$$= 11.92\%$$

(Q3)

Calculation of WACC using Book value weights.

Sources of Funds	Amt	Prop	After Tax COC	WACC
Debentures	800000	0.4	4.28%	1.712
Preference shares	200000	0.1	10.60%	1.06
Equity shares	1000000	0.5	15%	7.5
	2000000	1		10.27

→ $K_e = \frac{D_1}{P_0 (NP)} \times 100 + g$

$\frac{2}{20} \times 100 + 5$

15%

→ $K_d = \frac{Int(1-t) + \left[\frac{RV-NP}{n}\right]}{\left[\frac{RV+NP}{2}\right]} \times 100$

$\frac{8(1-0.5) + \left[\frac{100-96}{20}\right]}{\left[\frac{100+96}{2}\right]} \times 100$

4.28%

$$Kp = \frac{PD(1+DDT) + \left[\frac{RV-NP}{n}\right]}{\left[\frac{RV+NP}{2}\right]} \times 100$$

$$\frac{10(1+0) + \left[\frac{100-95}{15}\right]}{\left[\frac{100+95}{2}\right]} \times 100$$

$$= 10.60\%$$

(b) Calculation of WACC using market value weights.

Sources of funds	Amt	Prop	After tax COC	WACC
Debentures	880000	0.27	4.28%	1.1556
Preference shares	240000	0.07	10%	0.7
Equity shares.	2200000	0.666	15%	9.9
	3320000	1		11.7556

(Q4).

WN / Ref.

20 L.

25 Debt — 5 L. | 75 Equity — 15 L

Upto 2L 10% Debt | ~~Up~~ 3L 13% Debt | Retained Earnings 4L. | Issue of ESC 11L

(a). Calculation of Post tax Avg cost of Additional debt

Sources of funds	Amt	Prop	After tax COC	WACC
10% Debt	200000	0.4	7%	2.8
13% Debt	300000	0.6	9.1%	5.46
	500000	1		8.26

→ $K_d = \frac{Int(1-t)}{NP} \times 100$

$= \frac{20000(1-0.3)}{200000} \times 100$

$= 7\%$.

→ $K_d = \frac{Int(1-t)}{NP} \times 100$

$= \frac{39000(1-0.3)}{300000} \times 100$

$= 9.1\%$

(b) Calculation of Ke. & Kr

$$Ke = \frac{D1}{P0} \times 100 + g$$

$$\frac{6 + 10\%}{60} \times 100 + 10\%$$

$$21\% = Ke = Kr$$

(c) Overall WACC.

Sources of Funds	Amt	Prop	After tax COC	WACC
10% Debt	200000	0.09	7%	0.63
16% Debt	300000	0.14	9.1%	1.638
Retained Earnings	400000	0.18	21%	3.78
Equity share capital	1100000	0.59	21%	12.39
	2200000	1		18.438

CAPITAL BUDGETING

TO BE DISCUSSED.

(Q1).

i) Conflict in rankings between NPV & IRR arises due to following reasons:

(i) Difference in initial investment
(ii) Difference in life of the projects.
(iii) Difference in the pattern of cash inflows

Project D has a high cash inflow in the first year which can be reinvested for a longer period and can generate higher reinvestment income. This ultimately results in a higher overall return i.e a higher IRR

Project C in contrast has a higher cash inflow in the last year and hence it cannot be reinvested. This results in lower reinvestment income and hence a lower IRR

ii) The IRR method implicitly assumes that the cash inflows of each year will be reinvested at IRR which at times can be considerably high and hence not achieveable

The NPV method implicitly assumes that the cash inflow of each year will be reinvested at COC which is the minimum rate at which company's funds are reinvested and hence always achieveable.

In case of conflict the NPV method is better than the IRR method due to its realistic & achieveable assumptions.

@2).

Evaluation of Project P

I) PV of CO

capital expenditure	40000 × CDF=1)	40000

II) PV of CI

Yr	CI	DF@15%	PV	DF@18%	PV	DF@20%	PV
1	13000	0.8696	11305	0.8475	11018	0.8333	10833
2	8000	0.7561	6049	0.7182	5746	0.6944	5555
3	14000	0.6575	9205	0.6086	8520	0.5787	8102
4	12000	0.5718	6862	0.5758	6190	0.4823	5788
5	11000	0.4972	5469	0.4371	4808	0.4019	4421
6	15000	0.4323	6845	0.3704	5556	0.3349	5023
			45735		41837		39722

Evaluation of Project J.

I) PV of CO

capital expenditure	20000 × CDF=1)	20000

II) PV of CI.

Yr	CI	DF@15%	PV	DF@24%	PV	DF@26%	PV
1	7000	0.8696	6087	0.8065	5646	0.7937	5556
2	13000	0.7561	9829	0.6504	8455	0.6299	8189
3	12000	0.6575	7890	0.5245	6294	0.4999	5999
			23807		20395		19743

i) NPV

Project P	43375 - 40000	5375
Project J	23807 - 20000	3807

ii) IRR

$$\text{Project P} = 18 + \begin{bmatrix} 2 & 2115 \\ ? & 1838 \end{bmatrix} = 19.74\%$$

$$\text{Project J} = 24 + \begin{bmatrix} 2 & 652 \\ ? & 395 \end{bmatrix} = 25.21\%$$

iii) As per IRR method, Project J should be selected since it has a higher IRR.

For using NPV method decision will be based on annualised NPV = $\frac{\text{NPV}}{\text{PVAF}}$

$$\text{Project P} = \frac{5375}{3.7845} = 1420.27$$

$$\text{Project J} = \frac{3807}{2.2832} = 1667.40$$

∴ Project J should be selected under NPV method.

∴ There is no conflict between NPV & IRR criteria.

iv) In the given situation, Project J should be selected since it is recommend by both the methods. However if there is a conflict between NPV & IRR method, NPV criteria should be choosen due to its realistic ~~&~~ reinvestment assumption.

(Q3)

Project A.

I) PV of CO- Capital expenditure

II) PV of CI.

Yr	CI	DF@10%	PV	DF@20%	PV
1	85	0.91	77.35	0.83	70.55
2	200	0.83	166	0.69	114.54
3	240	0.75	180	0.58	139.20
4	220	0.68	149.60	0.48	105.60
5	70	0.62	43.40	0.41	28.70
			616.35		458.59

III) NPV = PV of CI - PV of CO

616.35 - 500 = 116.35

IV) IRR = $10 + \begin{bmatrix} 10 & 157.76 \\ ? & 116.35 \end{bmatrix}$ 17.38%

Project B

I) PV of CO = Capital Expenditure 500

II) PV of CI

Yr	CF	DF @ 10%	PV	DF @ 20%	PV
1	480	0.91	436.80	0.83	398.40
2	100	0.83	83	0.69	69
3	70	0.75	52.50	0.58	40.60
4	30	0.68	20.40	0.48	14.40
5	20	0.62	12.40	0.41	8.20
			605.10		530.60

III) NPV = PV of CI − PV of CO
605.10 − 500 = 105.10

IV) IRR = $10 + \begin{bmatrix} 10 & 74.5 \\ ? & 105.10 \end{bmatrix}$ = 24.11%.

i)

	NPV	IRR.
Project A	116.35	105.10
Project B	17.38%	24.11%

ii) Project A should be accepted since it has a higher NPV.

iii) The inconsistency in ranking is due to difference in reinvestment assumption. NPV method assumes that cash inflow of each year will be reinvested at COC = 10% pa whereas the IRR method assumes that cash inflows of each year will be reinvested at IRR.

(Q4)

Machine X:

Yr	NPBDT − Depⁿ =	NPBT − Tax@30% =	NPAT + Depⁿ = CI	DF@10%
1	250000 − 130000 =	120000 − 36000 =	84000 + 130000 = 214000	0.909
2	230000 − 130000 =	100000 − 30000 =	70000 + 130000 = 200000	0.826
3	180000 − 130000 =	50000 − 15000 =	35000 + 130000 = 165000	0.751
4	200000 − 130000 =	70000 − 21000 =	49000 + 130000 = 179000	0.683
5	180000 − 130000 =	50000 − 15000 =	35000 + 130000 = 165000	0.621
6	160000 − 130000 =	30000 − 9000 =	21000 + 130000 = 151000	0.564

~~PV of CI 78048~~

~~(=) PV of CO~~

PV of CI	CCI
194526	214000
165200	414000
123915	579000
122257	758000
102465	923000
96444	1074000
804807	

NPV

PV of CI = 804807

(−) PV of CO = (800000)

4807

PBP

$$4 \text{ yrs} + 0.25 = 4.25 \text{ yrs}$$

$$\begin{bmatrix} 1 & + & 165000 \\ ? & & 42000 \end{bmatrix}$$

Machiney :

Yr	NPBDT (-) Depn =	NPBT - Tax @ 30% =	NPAT + Depn =	CI	DF @ 10%
1	270000 - 165000 =	105000 - 31500 =	73500 + 165000 =	238500	0.909
2	360000 - 165000 =	195000 - 58500 =	136500 + 165000 =	301500	0.826
3	380000 - 165000 =	215000 - 64500 =	150500 + 165000 =	315500	0.751
4	280000 - 165000 =	115000 - 34500 =	80500 + 165000 =	245500	0.683
5	260000 - 165000 =	95000 - 28500 =	66500 + 165000 =	231500	0.621
6	185000 - 165000 =	20000 - 6000 =	14000 + 165000 =	179000	0.564
				+30000	
				= 209000	

PV of CI	CCI
216797.	238500
249039	540000
236941	855500
167677	1101000
143762	1332500
117876	1541500
1132092	

NPV

PV of CI = 1132092

(-) PV of CO = 1020000

1120 92

PBP

3yrs + 0.67 = 3.67 yrs

$$\begin{bmatrix} 1 - 245500 \\ ? - 164500 \end{bmatrix} (1020000 - 855500)$$

0.67

ESTIMATION OF WORKING CAPITAL

classmate Date Page

TO BE DISCUSSED.

Cost structure	$	
Raw material	(5 x 60%) x 60000	1,80,000
Direct wages	(5 x 10%) x 60000	30,000
OH (assumed FOH end dep)	(5 x 20%) x 60000	60,000
		2,70,000

Particulars	Working	Amount
Current Asset		
→ Stock of Raw Mat	180000 x 2/12	30000
→ Stock of WIP		
- Raw material	180000 x 1/12 x 100%	15000
- Direct wages	30000 x 1/12 x 50%	1250
- FOH	60000 x 1/12 x 50%	2500
→ Stock of FG	270000 x 3/12	67500
→ Debtors	270000 x 3/12	20000
	CA	203750
Current liabilities		
→ Creditors	180000 x 2/12	30000
→ O/s wages & OH	90000 x 1/12 (60000+30000)	7500
	CL	37500
	CA - CL	166250

→ Alternatively o/s wages & OH. can also be considered for only half a month.

(Q2).

Cost structure	
Materials	900000
wage	720000
Manufacturing Exp	1080000
Others FOH	180000
	2880000
Admin OH	240000
selling OH	150000
	3270000

C + P = S

80 + 20 = 100

DOM ? 24L

1920000

80 + 10 = 90

Exp ? 1080000

960000

Total cost = 2880000

But Mat+lab+OH = 2700000

Other Manu Exp 1800000

→ Income tax is to be paid out of Profits earned and hence no working capital investment is required for it. It is not considered as part of working capital.

statement showing est of working capital on cash cost

Particulars	working	Amount
Current Assets		
→ Stock of Raw Mat	900000 × 1/12	75000
→ Stock of FG	2880000 × 1/12	240000
~~→ Stock of~~		
→ Debtors @ SP DOM	240000 × 1/12	200000
Exp	1080000 × 3/12	270000
→ Prepaid Sales Promotion	150000 × 3/12	37500
→ Cash (250000 − 75000)		175000
	CA	997500
Current liabilities		
→ Creditors	900000 × 2/12	150000
→ O/s wages (0.5m)	720000 × 0.5/12	30000
→ O/s Manuf & admin	(1080000 + 240000) × 1/12	110000
	CL	290000
	CA − CL	707500
	+ safety margin 12%	84900
	WC	792400

→ The total cost as per GP margin is 2880000 But material, labour and manufacturing enperses given adds upto 2700000 it is assumed that the difference 180000 represents other manufacturing enperses

→ It is assumed that the estimation is to be made on total basis alternatively the admin & selling enperses can be bifurgated b/w domestic & expert & therefore estimate can be made on cash cost basis

(Q3).

Cost structure

	FG	WIP	Total
Raw materials	8320000	320000	8640000
Direct wages	3120000	60000	3180000
o/heads	6240000	120000	6360000
	17680000	500000	
Add: op stock FG	NIL		
Cl: cl stock FG	1360000		
[17680000 x 8000 / 104000]	16320000		

	Particulars	Working		Amount
	Current Assets			
→	Stock of Raw mat	8640000 x 4/52		664615
→	Stock of WIP	—		500000
→	Stock of FG	~~16320000 x 8/5~~		1360000
→	Debtors	16320000 x 8/5		2510769
→	CASH / Bank	—		25000
			CA	5060384
	Current Liabilities			
→	Creditors	Purch = const + cl − op		7157396
		8640000 + 664615 − NIL		
		9304615 x 4/52		
→	o/s wages	3180000 x 11/2/52		91731
			CL	807471
			CA − CL	4252913.

classmate
Date
Page

HOMEWORK.

(Q1)

Cost structure

Raw materials	900000
Direct wages	720000
Manufacturing expenses	960000
	2580000
Administrative expenses	240000
Sales promotion	120000
	2940000

	Particulars	working	Amount
-	Current Assets		
→	Stock of RM	900000 × 1/12	75000
→	Stock of FG	2580000 × 1/12	215000
→	Debtors	2940000 × 2/12	490000
→	Prepaid sales promotion	120000 × 3/12	30000
→	Cash & Bank		100000
		CA	910000
	Current Liabilities		
→	Creditors	900000 × 2/12	150000
→	OS expenses	1920000 × 1/12	160000
		↓	
		(960000 + 240000 + 720000) CL	310000
		CA-CL	600000
		+ safety margin	120000
		WC	720000

(Q2).

Net operating cycle period

1. RM. holding period — Avg RM stock 190000; RM consumed 1080000

1080000 : 360
190000 : 64 — 64 days

2. Processing Time — Avg WIP 80000

Cost of prod

R.M. cons	1080000
wages	300000
Prodn exp	200000
	1580000
+ op WIP	60000
(-) cl WIP	(100000)
	1540000

1540000 : 360
80000 : ? — 19 days

3. Finished Goods holding period — Avg FG 280000; costs 1500000

or

Op FG + Compl.y - Cl FG

(260000 + 1540000 - 300000) ← 1500000 : 360
280000 : ? — 68 days

4. Debtors Collection Period — AVG DRS 175000; cr sales 2000000

2000000 : 360
175000 : ? — 32 days

5- Creditors payment period

Avg Crs 220000
Cr Purch 1100000

1100000 360
220000 ? 72 (72) days

111 days

Amount of working capital

Annual op cost → COGS - Trading cost 1500000
Admin exp 175000
sell exp 75000
Annual op cost 1750000

W.C. Amt = $1750000 \times \frac{111}{366} = ₹539583$

(Q3).

Cost structure		
Raw material	117 x 78000	9126000
Direct labour	49 x 78000	3822000
FOH	80 x 78000	6240000
		19188000

	Particulars	working	Amount
	Current Assets		
→	Stock of R.M	9126000 x 4/52	702000
→	Stock of WIP		
	→ R.M	9126000 x 2/52 x 80%	280800
	→ Direct labour	3822000 x 2/52 x 60%	88200
	→ FOH.	6240000 x 2/52 x 60%	144000
→	Stock of FG	19188000 x 3/52	1107000
→	Debtors	19188000 x 4/52 x 6/52	1771200
→	Cash		250000
		CA	4343200
	Current Liabilities		
→	Creditors	9126000 x 8/52	1404000
→	O/s wages	3822000 x 4/52	73500
→	O/s OH.	6240000 x 2/52	240000
		CL	1717500
		CA - CL	2625700

classmate
Date
Page

(Q4).

Cost structure

Raw materials	120 × 54000	6480000
Direct wages	20 × 54000	1080000
overheads	40 × 54000	2160000
		9720000

	Particulars	working	Amount
	Current assets		
→	stock of RM	6480000 × 2/12	1080000
→	stock of WIP		
	R.M	6480000 × 1/12 × 100%	540000
	Direct wages	1080000 × 1/12 × 50%	45000
	overheads	2160000 × 1/12 × 50%	90000
→	stock of FG	9720000 × 2/12	1620000
→	Debtors	9720000 × 1.5/12	1215000
→	Cash	630000 × 40/100	252000
			CA 4842000
	Current liabilities		
→	creditors	6480000 × 1/12	540000
→	O/S wages	1080000 × 1/12	90000
			CL 630000
			CA-CL 4212000
			+ safety margin 631800
			W.C. 4843800

(Q5)

$$ROTA = \frac{EBIT}{TA} \times 100$$

$$\therefore \underline{I} = \frac{200000}{500000 + 500000} \times 100 = 20\%$$

$$\underline{II} = \frac{200000}{500000 + 400000} \times 100 = 22.22\%$$

$$\underline{III} = \frac{200000}{500000 + 300000} \times 100 = 25\%$$

classmate
Date
Page

(Q6).

Cost structure		
Raw material (20pu x 40000)		800000
Direct labour (15pu x 40000)		600000
Manufacturing o'heads		
V (15pu x 40000)		600000
F (10pu x 60000)		600000
+ op stock of FG		NIL
- cl stock of FG	$\left[\frac{2600000 \times 5000}{40000}\right]$	(325000)
		2275000
+ selling & distribution OH V (3x35000)		105000
F (1x60000)		60000
		2440000

particulars	working	Amt
stock of RM	800000 x 3/12	200000
stock of FG	—	325000
debtors	2440000 x 1.5/12	305000
Cash & Bank	—	60000
	CA	890000
Current liabilities		
creditors	Purch = cons + cl - op	333333
	800000 + 200000 - 0	
	1000000 x 4/12	
o/s wages	600000 x 4/12	50000
o/s OH	(600000 + 600000 + 105000 + 60000) x 0.5/12	56875
	CL	440208
	CA-CL	449792
	+ safety 10%	49979
	WC	499769

(Q7)

Cost structure

Materials	600000
Wages	480000
Manufacturing Exp	600000
	1680000
Admin Exp	150000
Sales Promotion Exp	75000
	1905000

Particulars	working	Amount
Current Assets		
→ Stock of RM	600000 × 1/12	50000
→ Stock of FG	1680000 × 1/12	140000
→ Debtors	1905000 × 2/12	317500
→ Prepaid Exp	75000 × 3/12	18750
→ Cash		80000
		CA 606250
Current Liabilities		
→ Creditors	600000 × 2/12	100000
→ O/s Exp	(480000 + 600000 + 150000) × 1/12	102500
		CL 202500
	CA − CL	403750
	+ safety margin	44861
		448611

RECIEVEABLE MANAGEMENT

TO BE DISCUSSED.

(Q1).

→ Evaluation of customers Proposal.

	Sales	1,00,000	
(-)	Cost 80%	(80,000)	
	Profit	20,000	
(-)	Bad debts 10%	(10,000)	
	NPBT	10,000	
(-)	Tax @ 50%	(5000)	
	NPAT (A)	5000	
	DR @ cost	10000	→ [1,00,000 × 80% × 1.5/12]
	COCD @ 25% (B)	2,500	
	Net Benefit A-B	2,500	

The customers proposal should be accepted due to positive net benefit

→ Calculation of Bad debts %

		I	II	III
	Sales	1,00,000	1,00,000	1,00,000
(-)	Cost 80%	(80,000)	(80,000)	(80,000)
	Profit	20,000	20,000	20,000
(-)	Bad debts (bf)	(14000)	(12000)	(8000)
	NPBT 100	6000	8000	12000
(-)	Tax 50	(3000)	(4000)	(6000)
	NPAT (A) 50	3000	4000	6000
	DR @ cost	10,000	10,000	10,000
	COCD (B)	3000	4000	6000
	Net Benefit A-B	NIL	NIL	NIL
	BD %	14%	12%	8%

(Q2).

Evaluation of Credit Policy

Particulars	Current Position	I option	II option	III option
Sales	200	210	220	250
(-) Cost 60%	(120)	(126)	(132)	(150)
Profit (A)	80	84	88	100
Bad debts (B)	4	5.25	6.6	12.5
Cost of credit (C)	1.20	1.30	1.5	3
Debtors @ cost	10	15.75	22	37.5
COCD @ 20% (D)	2	3.15	4.4	7.5
Net Benefit [A-B-C-D]	72.8	74.30	75.5	77

Concl:

The best option is option III with credit period of 3 months.

(Q3).

Evaluation of credit Policy

	Existing 1m	Proposed 2m to all	Proposed 2m to new
Sales.	48,00,000	60,00,000	60,00,000
(-) V.C.	(38,40,000)	(48,00,000)	(48,00,000)
Profit (A)	9,60,000	12,00,000	12,00,000
Incremental Profit (A)	NIL	2,40,000	2,40,000
Debtors.	3,20,000	8,00,000	8,00,000
Incr debtors	—	4,80,000	1,60,000*
Incr Stock	—	2,00,000	2,00,000
Incr creditors	—	(1,00,000)	(1,00,000)
W.C. Incremental	—	5,00,000	2,60,000
Cost of WC 40% (B)	—	2,32,000	1,04,000
Net Benefit A-B	—	8000	1,36,000

Concl:

The company should extent credit upto 2m but only to new customers.

* Cost 4800000

Existing		New
38,40,000		960000
1m		2m
3,20,000	+	1,60,000
	4,80,000	

(Q4).

Eligible debtors

A/c NO	Amt
74	25000
107	11500
108	2300
116	29000
	67800

Qualifying Amt
67,800 - 10%
61,020

Loan = 80% of 61,020
48,816.

(Q5).

Evaluation of credit Policy

Particulars	Existing 30 days	Proposed 60 days.
Sales	15,00,000	17,25,000
(-) variable cost	(9,00,000)	(10,35,000)
Profit (A)	6,00,000	~~4,31,250~~ 6,90,000
Bad debts (B)	15,000	69,000
Debtors @ cost	75,000	172500
COCD @ 12% (C)	9000	20700
Net Benefit A-B-C	5,76,000	6,00,300

Concl:

Mosaic Ltd should introduce the proposed policy due to higher net benefit

HOMEWORK

(Q1)

	Existing 1m	Proposed 2m.
Sales	8,40,000	9,07,200.
(-) variable cost	5,25,000	5,67,000
Profit (A)	3,15,000	3,40,200
Debtors @ cost	43,750	94,500
COCD @ 25%. (B)	10,938	23,625
Net Benefit A-B	3,04,062	3,16,575

Concl:

Proposed policy should be accepted since net benefit is higher

(Q2).

Cash SP 100

+ Int

$100 \times 24\% \times 30/365$ 1.97

101.97.

For cash payment

Disc £1.97

$\% \frac{1.97}{101.97} \times 100$

1.93%

(Q3)

Calculation of effective cost of Factoring.

Sales	12,00,000
Bad debts avoided. (A)	(18,000)
Expenses (B)	(50,000)
Commission (C)	24,000
Interest (D)	44,240
effective cost of capital	1,760

C+D-A-B

Sales	12,00,000
Dues @90d.	3,00,000
(-) comm	(6000)
(-) Res 10%.	(30,000)
	2,64,000
Int 16% @90d.	10560
	253,440

Annual Int = 42,240

$$ICAI\% = \frac{66240}{253440} \times 100$$

26.14%

(Q4).

		Exist 30days	A 45days	B 60days	C 75days	D. 90 days
	sales	50	56	60	62	63
(-)	VC	(40)	(44.8)	(48)	(49.6)	(50.4)
	Profit (A)	10	11.2	12	12.4	12.6
	Drs @cost	3.33	5.6	8	10.33	12.6
	COCD @ 20% (B)	0.66	1.12	1.6	2.066	2.52
	Net Benefit	9.34	10.08	10.4	₹0.334	10.08

The company should adopt policy of 60days

(Q5.)

		Existing 30d.	A 40d	B 50d	C 60d	D 75d.
	sales	600000	630000	648000	675000	690000
(-)	VC 2/3	(400000)	(420000)	(432000)	(450000)	(460000)
	Profit (A)	200000	210000	216000	225000	230000
	Bad debts (B)	(6000)	9450	12960	20250	27600
	Drs ~~@cost~~ @SP	~~33333~~ 33333 ~~50000~~	~~46667~~ 46667 ~~70000~~	~~90000~~ 60000	~~125000~~ 75000	~~143750~~ 95833
	COCD @ 20% (C) @cost	~~6667~~ 6667 ~~10000~~	~~9333~~ 9333 ~~14000~~	~~18000~~ 12000	~~22500~~ 15000	~~28750~~ 19167
	Net Benefit A-B-C.	~~184000~~ 187333	~~186550~~ 191217 ✓	~~185040~~ 191040	~~182250~~ 189750	~~173650~~ 183233

Concl:

The Proposed Policy A should be selected as net benefit is higher.

classmate
Date
Page

(Q.6)

	Existing 20d.	I 30	II 40	III 50	IV 60
Sales	60	65	70	74	75
(-) V.C 70%	(42)	(45.5)	(49)	(51.8)	(52.5)
Profit (A)	18	19.5	21	22.2	~~49.5~~ 22.5
Rec @ cost.	2.33	3.79	5.44	7.19	8.75
COCD @ 25% (B)	0.58	0.95	1.36	1.80	2.19.
Net Benefit	17.42	18.55	19.64	20.4	~~47.31~~ 20.31

Concl: Policy ~~IV~~ III should be accepted as Net Benefit is higher.

(Q7)

	Existing	I.	II
Sales	87.5	105	118
(-) VC	(61.25)	(73.5)	(82.6)
Profit (A)	26.25	31.5	35.4.
Baddebts (B) (Cost / DTR)	2.63	5.25	7.88
Rec @ cost	8.75	6	19.67
COCD @ 30%. (C)	2.625	1.8	5.901
NetBenefit	20.995	24.45 ✓	21.619.

Concl:

Policy I should be accepted as Net Benefit is higher.

CASH BUDGET

TO BE DISCUSSED.

(Q1.)

CASH BUDGET.

(a) 3 months ending 31.3.17

(£in'000s)

particulars	Jan 17	Feb 17	Mar 17
opening cash Balance	545	315	65
Add: Receipts.			
From Debtors	2070	1900	1850
sale of Investment	–	700	–
sale of plant	–	–	50
(A)	2615	2915	1965
less: Payments.			
Creditors	1645	1355	1280
Enperses. (-60)	255	210	195
Capital Enperditure	–	800	–
Payment of dividend	–	485	–
Purchase of investments	400	–	200
(B)	2300	2850	1675
closing cash Balance (A-B)	315	65	290.

(Q2).

Projected Profit/loss A/c for the 3rd year (₹ in lakhs)

Particulars	Yr 2	Yr 3	Particulars	Yr 2	Yr 3
To Material	350	420	By sales	1000	1200
To stores	120	144	By M/s income	10	10
To Mfg exp	160	192			
To other exp	100	150			
To Depreciation	100	100			
To Net Profit	180	204			
	1010	1210		1010	1210

Cash Flow:

Profit	204
+ Depreciation	100
	304
(-) Cash required for increase in stock	50
Net cash inflow.	254.

Available for servicing the loan
75% of 2540000
i.e. 1,90,50,000

WN:

(i) Material consumed in yr 2: 35% of sales
likely consumption in yr 3 = 1200 × 35% = 420 lakhs.

(ii) stores are 12% of sales in yr 2.

(iii) Manufacturing expenses are 16% of sales.

HOMEWORK

(Q1)

Cleared Funds Forecast

	7 Jan X7 M	8 Jan X7 T	9 Jan X7 W	10 Jan X7 T	11 Jan X7 F
Receipts					
W Ltd	130000	0	0	0	0
X Ltd	0	0	0	180000	0
(a)	130000	0	0	180000	0
Payments					
A Ltd	45000	0	0	0	0
B Ltd	0	0	75000	0	0
C Ltd	0	0	95000	0	0
wages	0	0	0	0	12000
salaries	56000	0	0	0	0
petty cash	200	0	0	0	0
stationery	0	0	300	0	0
(b)	101200	0	170300	0	12000
Cleared encess Receipts over payments (a-b)	28800	0	(170300)	180000	(12000)
Cleared balance b/f	200000	228800	228800	58500	238500
(c) Cleared balance c/f	228800	228800	58500	238500	226500
Uncleared funds float					
Receipt	180000	180000	180000	0	0
Payment	(170000)	(170300)	0	(6500)	(6500)
(d)	10000	9700	180000	(6500)	(6500)
Total book balance c/f (c+d)	238,800	238,500	238,500	232000	220000

(Q2).

Monthly Cash Budget For six Months, April to Sept 2017

Particulars	April	May	June	July	Aug	Sept
Receipts:						
Opening cash Bal	20000	20000	20000	20000	20000	20000
Cash sales	16000	12000	16000	20000	16000	12000
Collection from Debtors	108000	76000	52000	60000	76000	68000
Total cash available (A)	144000	108000	88000	100000	112000	100000
Payments:						
Purchases	48000	64000	80000	64000	48000	80000
Wages & salaries	9000	8000	10000	10000	9000	9000
Interest on debt	3000	-	-	3000	-	-
Tax payt	-	-	-	5000	-	-
Total payments (B)	60000	72000	90000	82000	57000	89000
Minimum cash Bal req	20000	20000	20000	20000	20000	20000
Total cash needed (C)	80000	92000	110000	102000	77000	109000
surplus (-Deficit) A-C.	64000	(16000)	(22000)	(2000)	35000	(9000)
Temporary Investment	(64000)	(16000)			(35000)	
Liquidation of tempo-rary investment			22000	2000		9000
Total effect of inst financing (D)	(64000)	(16000)	22000	2000	(35000)	9000
closing cash Bal A+D-B.	20000	20000	20000	20000	20000	20000

WN:

Collection from Debtors

	Feb	Mar	Apr	May	Jun	Jul.	Aug
Total sales	120000	140000	80000	60000	80000	100000	80000
Credit sales (80%)	96000	112000	64000	48000	64000	80000	64000

Sep.
60000
48000

	March	Apr	May	June	July	Aug	Sept
Collection							
1m	72000	84000	48000	36000	48000	60000	48000
2m		24000	28000	16000	12000	16000	20000
Total Collection		108000	76000	52000	60000	76000	68000

WN:

	A	M	J	J	A	S	O.
Purch	64000	48000	64000	80000	64000	48000	80000
Payth ces	48000 ←	64000 ←	80000 ←	64000 ←	48000 ←	80000 ←	

CAPITAL BUDGETING & RISK ANALYSIS.

classmate Date Page

TO BE DISCUSSED:

(Q1)

Normal.

	Yr 1	Yr 2	Yr 3
sales	12,00,000	18,00,000	18,00,000
(-) variable cost	(8,00,000)	(12,00,000)	(12,00,000)
Contribution	4,00,000	6,00,000	6,00,000
(-) Fixed cost	—	—	—
CI	4,00,000	6,00,000	6,00,000
x DF@10%	0.9091	0.8264	0.7513
PV of CI	3,63,640	+ 4,95,840 +	450,780
	= 13,10,260		

PV of CI	= 13,10,260
(-) PV of CO	= (10,00,000)
	3,10,260

(a) sale per unit

	Yr 1	Yr 2	Yr 3
sales	11,40,000	17,10,000	17,10,000
(-) variable cost	(8,00,000)	(12,00,000)	(12,00,000)
Contribution	3,40000	5,10,000	5,10,000
(-) Fixed cost	—	—	—
CI	3,40,000	5,10,000	5,10,000
DF @ 10%	0.9091	0.8264	0.7513
PV of CI	3,09,094	+ 4,21,464+	~~4,05,702~~ 3,83,163
		= ~~11,36,260~~	
	11,13,721	= 11,13,721	

PV of CI	= ~~11,36,260~~
(-) PV of CO	= (10,00,000)
	~~1,36,260~~
	11,3721

(b) Unit cost

	Yr 1	Yr 2	Yr 3.
Sales	12,00,000	18,00,000	18,00,000
(-) variable cost	(8,40,000)	(12,60,000)	(12,60,000)
Contribution	3,60,000	5,40,000	5,40,000
(-) Fixed cost	—	—	—
CI	3,60,000	5,40,000	5,40,000
DF @ 10%	0.9091	0.8264	0.7513
Pv of CI	3,27,276 +	4,46,256 +	4,05,702

= 11,79,234

Pv of CI	11,79,234
(-) Pv of CO	(10,00,000)
	1,79,234

(c) Sales volume

	Yr 1	Yr 2	Yr 3.
Sales	11,40,000	17,10,000	17,10,000
(-) variable cost	(7,60,000)	(11,40,000)	(11,40,000)
Contribution	3,80,000	5,70,000	5,70,000
(-) Fixed cost	—	—	—
CI	3,80,000	5,70,000	5,70,000
DF @ 10%	0.9091	0.8264	0.7513
Pv of CI	3,45,458 +	4,71,048 +	4,28,241

= 12,44,727

Pv of CI	12,44,727
(-) Pv of CO	(10,00,000)
	2,44,727

(d) Initial outlay.

PV of CI = 13,10,260
(-) PV of CO = (10,50,000)
2,60,260

(3,10,260 -

$\frac{3,10,260 - 1,13,721}{3,10,260} \times 100 = 63.35\%$

$\frac{3,10,260 - 1,79,234}{3,10,260} \times 100 = 42.23\%$

$\frac{3,10,260 - 2,44747}{3,10,260} \times 100 = 21.11\%$

$\frac{3,10,260 - 2,60,260}{3,10,260} \times 100 = 16.12\%$

∴ NPV is more sensitive to SPPU.

(Q2).

~~Plan I~~.

$Ke = IRF + (Rm - IRF)\beta$.

$10\% + (15\% - 10\%)1.8 = 19\%$
$10\% + (15\% - 10\%)1 = 15\%$
$10\% + (15\% - 10\%)0.60 = 13\%$

Plan I

NPV

PV of CI	15,83,160
(-) PV of CO	(15,00,000)
	£83,160

A) PV of CO

1. Initial Invst = 1500000×1
= 15,00,000

B). PV of CI.

CI from projects.

CI p.a	600000 pa
X PVAF @ 19% for 4 yrs	2.6386
	15,83,160

classmate
Date
Page

Plan II

NPV

PV of CI	12,67,310
(-) PV of CO	(11,00,000)
	₹ 1,67,310

A) PV of CO

1. Initial investment = 11,00,000 × 1
= 11,00,000

B) PV of CI

1. CI from projects.

Yr	CI	DF@15%	PV of CI.
1	600000	0.8696	5,21,760
2	400000	0.7561	3,02,440
3	500000	0.6575	3,28,750
4.	200000	0.5718	11,4360
			12,67,310

Plan III

NPV

PV of CI	21,14,300
(-) PV of CO	(19,00,000)
	£2,14,300

A) PV of CO

1. Initial Investment = 19,00,000 x 1
= 19,00,000

B) PV of CI

Cash flow from project

Yr	CI.	DF@ 13%	PV of CI
1	400000	0.8850	354000
2	600000	0.7831	469860
3	800000	0.6931	554480
4	1200000	0.6133	735960
			2114300

Concl:

Plan III should be selected because its NPV is higher.

Note:

Tax rate is to be ignored because it is not considered while calculating Ke.

HOMEWORK.

(Q1).

NPV

PV of CI	50,34,482
(-) PV of CO	(45,00,000)
	£5,34,482

A) **PV of CO**

1. Initial Invst = 4500000 x 1
= 4500000

B) **PV of CI**

Yr	Est CF	x CE	= Certain CE	x DF @ 5%	
1	10,00,000	x 0.90	9,00,000	0.9524	8,57,160
2	15,00,000	x 0.85	12,75,000	0.9070	11,56,425
3	20,00,000	x 0.82	16,40,000	0.8638	14,16,632
4	25,00,000	x 0.78	19,50,000	0.8227	16,04,265
					50,34,482

DIVIDEND DECISION

(Q1).

$$P_0 = \frac{D + (E-D) \times r/ke}{ke}$$

$$= \frac{8 + (10-8) \times 0.10/0.08}{0.08}$$

$$= £131.25$$

$$r = \frac{400000}{4000000} = 10\%$$

$$Ke = \frac{1}{PER} = \frac{1}{4.5} = 8\%$$

Since r (10%) > Ke (8%) the optimal payout ratio as per walter's model is 0% but the company has payout 80%. The D.P. ratio of company is not optimal.

(Q2)

(i) $$P_0 = \frac{D + (E-D) \times r/ke}{ke}$$

$$= \frac{3 + (5-3) \times 0.15/0.12}{0.12}$$

$$= £45.83$$

(ii) Since r (15%) > Ke (12%) the optimal payout ratio as per walter's model is 0%. price at this payout ratio will be

$$P_0 = \frac{0 + (5-0) \times 0.15/0.12}{0.12}$$

$$= £52.08$$

(Q3).

(i) $P_1 = P_0(1+K_e) - D_1$

If dividend is declared.

$P_1 = 120(1+0.096) - 6.40$

$= £125.12$

If dividend is not declared

$P_1 = 120(1+0.096) - NIL$

$= £131.52$

(ii)

	If dividend is declared	If dividend is not declared
Net income	1.60	1.60
(-) dividend	(0.512)	-
Available for invst	1.088	1.60
Investment	3.20	3.20
Fresh issue required	2.112	1.60
Issue price	125.12	131.52
Number of shares	168798 shares	121655 shares

(Q4).

A. Calculation of market price.

$P_1 = P_0 (1+Ke) - D_1$

If dividend is declared.

$P_1 = 100 (1+0.10) - 5 = £105$

If dividend is not declared.

$P_1 = 100 (1+0.10) - NIL = £110$

B. value of the firm
(Assumed to be value at the end of the year)

	If dividend is declared	If dividend is not declared
Net income	500000	500000
(-) Dividend	(250000)	NIL
Available for inst	250000	500000
Investment	1000000	1000000
Fresh issue required	750000	500000
Issue Price	105	110
No of shares	7143 shares	4546 shares
Total no of shares	57143 shars	54546 shares
value of firm		
57143 x105	60,00,015	
54546 x 110		60,00,060.