Paper-12: FINANCIAL MANAGEMENT & INTERNATIONAL FINANCE

Time Allowed: 3 Hours **Full Marks: 100**

The figures in the margin on the right side indicate full marks.
Answer Question No. 1 from Part A which is compulsory and any five questions from Part B.
Working notes should form a part of the answer
"Wherever necessary, suitable assumptions should be made and indicated in answers by the candidates"

PART A (25 Marks)

1. (a) In each, of the cases given below, one out of four answers is correct. Indicate the correct answer (= 1 mark) and give workings/reasons briefly in support of your answer (= 1 mark) [2x9=18]

(i) The total asset – turnover ratio and total asset to net- worth ratio of a company are 2.10 and 2.50 respectively. If the net profit margin of the company is 6%, what would be the return on equity?
A. 30.50%
B. 31.50%
C. 30.00%
D. 32.50%

(ii) AB Ltd. paid a dividend of ₹5 per share that is expected to grow at a rate of 10% for the next year, after which it is expected to grow at a rate of 8% forever. What would be the value of the stock if a 15% rate of return is required? [Given PVIF(15%,1 year) = 0.8696]
A. ₹78.57
B. ₹73.79
C. ₹84.85
D. ₹75.77

(iii) X Ltd has an ROA of 10% and a profit margin of 2%. The Company's total asset turnover is
A. 5%
B. 20%
C. 12%
D. 8%

(iv) Increase in the degree of operating leverage and decrease in the degree of financial leverage is 20%. What would be the impact on degree of total leverage?
A. 4% increase
B. 5% increase
C. 4% decrease
D. No change

(v) The rates available in Indian market are:
₹/$ Spot 66.68/72
£/$ 0.602/06
If an Indian wants to acquire £, what rate should be charged to him?
A. ₹89.17/£
B. ₹110.83/£
C. ₹112.17/£
D. ₹90.22/£

(vi) Xee Ltd. paid a dividend of ₹4.00 per share for the year 2013. If the expected growth rate is 12% and the rate of return is 20%, the intrinsic value for its share would be _____.

A. ₹50
B. ₹200
C. ₹100
D. ₹55

(vii) The current price of a share of Asha Ltd. is ₹120. The company is planning to go for a rights issue. The subscription price for one rights share is proposed to be ₹104. If the company targets that ex-rights value of a share shall not fall below ₹116, the number of existing shares required for 1 right share would be

A. 1
B. 2
C. 3
D. 4

(viii) Firm A and B are similar in all respect. But firm A uses ₹5,00,000 debt in its capital. If the rate of corporate tax is 40%., how would the valuation of both the companies differ?

A. Value of firm A greater than value of firm B by ₹ 2,00,000
B. Value of firm B greater than value of firm A by ₹ 2,00,000
C. Value of firm A greater than value of firm B by ₹ 5,00,000
D. Value of firm B greater than value of firm A by ₹ 5,00,000

(ix) The spot and 6 month forward rates of $ in relation to rupee are ₹60.34/ 72 and 61.02/66 respectively. What would be the annualized forward margin (premium with respect to bid price)?

A. 15.32%
B. 12.32%
C. 13.52%
D. 15.23%

b) State whether true or false: [1 × 7]

(i) Leading and netting are internal hedging techniques whereas swap is an external technique for hedging

(ii) In case of projects which are divisible, capital rationing is done by ranking projects on the basis of Net Present Value (NPV)

(iii) If a forward currency is FLAT, it means that the expected spot rate is equal to the forward rate.

(iv) Real options are most valuable when the underlying source of risk is very low.

(v) A firm's capital structure can never affect its free cash flows

(vi) Issue of Bonus shares by the subsidiary company out of pre-acquisition profits affects the cost of control.

(vii) CVP analysis assumes a linear revenue function and a linear cost function

Answer: 1 (a)

(i) B: 31.50%

$$\text{Return on Equity (ROE)} = \frac{\text{Profit after Tax}}{\text{Sales}} \times \left(\frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Net Worth}} \right)$$

$= 0.06 \times 2.10 \times 2.50$

$= 0.315$

$= \mathbf{31.5\%}$

(ii) A : ₹78.57

The present value of dividend stream to an investor would be as follows:

For the 1st year = ₹5 × 1.10 × 0.8696 = 4.7828

For the 2nd year = ₹5 × 1.10 × 1.08 = 5.94

$$\text{Price of the share} = \frac{5.94}{0.15-0.08} \times 0.8696 + 4.7828 = 78.57$$

(iii) A : 5%

$$\text{ROA} = 10\%, \text{PM} = 2\% \quad \text{AT} = \frac{S}{TA}$$

$$\text{ROA} = \frac{NI}{TA}, \text{PM} = \frac{NI}{S}$$

$$\text{AT} = \text{ROA} \times \frac{1}{\text{PM}}$$

$$\text{or, AT} = 10\% \times \frac{1}{2\%} = 5\%$$

Where,

ROA = Return on Assets

PM = Profit Margin

AT = Asset Turnover

S = Sales

TA = Total Assets

NI = Net Interest

(iv) C : 4% decrease

Degree of Total leverage = Degree of Financial leverage × Degree of operating leverage

$= 1.2 \times 0.8$

$= 0.96$

Therefore, Degree of Total leverage decreased by 0.04 ie **4% decrease**

(v) B : ₹110.83/£

Rate to be quoted is the Ask rate

$\Rightarrow (₹/\$)_{Ask} \times (\$/£)_{Ask}$

$\Rightarrow (₹/\$)_{Ask} \times \left[\frac{1}{(£/\$)_{Bid}}\right]$

$\Rightarrow 66.72 \times \left[\frac{1}{0.602}\right]$

$\Rightarrow$ **₹110.83/£.**

(vi) A : ₹50

$$\text{Price} = \frac{\text{Dividend}}{\text{Cost of Capital - Growth rate}}$$

$$= \frac{4}{0.20 - 0.12} = ₹50$$

(vii) C : 3

Ex-rights price of a share $= \frac{nP0+s}{n+1}$

or, $116 = \frac{120n+104}{n+1}$

Solving,
n = 3

(viii) A : Value of firm A greater than value of firm B by ₹ 2,00,000

When corporate taxes are considered, the value of a firm that is levered would be equal to the value of the unlevered firm increased by the tax shield associated with debt.

Hence the value of firm A, would be more than the value of firm B.

The value of firm A would be **more** than firm B by 0.4 × 5,00,000 = **₹2,00,000**

(ix) C : 13.52%

Forward Margin (premium with respect to bid price)

= [(61.02 – 60.34) ÷ 60.34] × 12 × 100

= **13.52%**

Answer: 1. (b)

(i) True
(ii) False
(iii) False
(iv) False
(v) False
(vi) False
(vii) True

PART B (75 MARKS)

Question.2

a) The financial position of Swarup Ltd. On Jan. 1 and Dec. 31, 2014 is as follows:

Liabilities	1st Jan(₹)	31st Dec(₹)	Assets	1st Jan(₹)	31st Dec(₹)
Current Liabilities for goods	36,000	40,600	Cash	4,000	3,600
			Debtors	35,000	38,000
Loan from ABC Co		20,000	Stock	25,000	22,000
Loan from Bank	30,000	25,000	Land	20,000	30,000
Hire-purchase Vendor		20,000	Building	50,000	55,000
			Machinery	80,000	86,000
Capital	1,48,000	1,54,000	Delivery Van		25,000
	2,14,000	2,59,600		2,14,000	2,59,600

The delivery van was purchased in December, 2014 on hire-purchase basis; a payment of ₹5,000 was made immediately and the balance of amount is to be paid in 10 monthly installments of ₹2000 each together with an interest @ 15% p.a. During the year the partners withdrew ₹20,000 for personal expenditure. The provision for depreciation against machinery on 31-12-2013 was ₹27,000 and 31-12-2014 was ₹36,000. You are requested to prepare the Cash Flow Statement. [10]

Answer:

CASH FLOW STATEMENT AS PER AS – 3 (REVISED)
(Indirect Method)

	₹	₹
I. Cash flows from operating activities:		
Net profit before tax and extraordinary items	26,000	
Adjustment for depreciation	9,000	
Operating profit before working capital changes (WN)	35,000	
Increase in creditors	4,600	
Decrease in stock	3,000	
Increase in debtors	(3,000)	
Net cash flow from operating activities		39,600
II. Cash flow from investing activities:		
Payment for delivery van	(5,000)	
Purchase of Machinery	(15,000)	
Purchase of Building	(5,000)	
Purchase of land	(10,000)	
Net cash flow from investing activities		(35,000)
III. Cash flow from financing activities:		
Loan from ABC Co	20,000	
Payment of Bank Loan	(5,000)	
Drawings by partners	(20,000)	
Net Cash flow from financing activities		(5,000)
IV. Net increase / decrease in cash & cash equivalents		(400)
V. Cash & cash equivalents at the beginning of the period		4,000
VI. Cash & cash equivalents at the end of the period		3600

Working Notes:

1. FUND FROM OPERATIONS

	₹
Capital as on 31.12.2014	1,54,000
Add: Drawings during the year	20,000
	1,74,000
Less: Capital as on 01.01.2014	1,48,000
Profit for the year	26,000
Add: Depreciation for the year (₹36,000 - ₹27,000)	9,000
	35,000

2. MACHINERY ACCOUNT

	₹		₹
To, Balance b/d	80,000	By, Depreciation for the year	9,000
To, Bank (acquired during the year)	15,000	By, Balance c/d	86,000
	95,000		95,000

b) The sales turnover and profit during 2013 and 2014 are as follows.

	Sales (₹)	**Profit (₹)**
Year 2013	**20,00,000**	**2,00,000**
Year 2014	**30,00,000**	**4,00,000**

Calculate:

(i) Profit Volume Ratio

(ii) Sales required to earn a profit of ₹5,00,000

(iii) Profit when sales is ₹10,00,000 **[1+2+2]**

Answer:

(i) Profit Volume Ratio

	2013 (₹)	**2014 (₹)**	**Net Increase**
Sales	20,00,000	30,00,000	10,00,000
Profit	2,00,000	4,00,000	2,00,000
Increase in costs			8,00,000

Since the fixed costs are constant, the increase in cost is the increase in variable cost in tune with increase in sales volume. So, variable cost is 80% of sales

∴ Profit – volume ratio is 100 – 80 = 20%

(ii) Sales required to earn a profit of ₹5,00,000

Fixed Cost = Contribution – Profit

= 20% of 30,00,000 – 4,00,000 = ₹2,00,000

$$\text{Required Sales} = \frac{\text{FixedCost+DesiredProfit}}{\text{P / VRatio}}$$

$$= \frac{2,00,000+5,00,000}{20} \times 100$$

= ₹35,00,000

(iii) Profit when sales is ₹10,00,000

Profit at sales of ₹10,00,000 ⇒ Sales × P/V Ratio – Fixed Cost
⇒ ₹10,00,000 × 20% - ₹2,00,000
⇒ ₹2,00,000 - ₹2,00,000 = Nil

Question.3

a) Aditya Birla Ltd, wants to assess its working capital requirement for the year 2015. For this purpose the company has gathered the following data.

ESTIMATED COST PER UNIT OF FININSHED PRODUCT

	₹
Raw Materials	**90**
Direct Labour	**50**
Manufacturing & administrative overhead (excluding depreciation)	**40**
Depreciation	**20**
Selling Cost	**30**
Total Cost	**230**

The product is subject to excise duty of 10% (levied on cost of production) and is sold at ₹300 per unit.

Additional Information:

(i) Budgeted level of activity is 1,80,000 units of output for 2015

(ii) Raw materials costs consists of the following:
Pig iron ₹65 per unit, Ferro alloys ₹15 per unit, and cast iron borings ₹10 per unit.

(iii) Raw materials are purchased from different suppliers having different credit periods:
Pig iron – 2 months, Ferro alloys – ½ month, and cast iron borings – 1 month

(iv) Product is in process for a period of ½ month. Production process requires full unit (100%) of pig iron and ferro alloys in the beginning of production; cast iron boring is required only to the extent of 50% in the beginning and the remaining is needed at a uniform rate during the process. Direct labour and other overheads accrue similarly at a uniform rate throughout production process.

(v) Past trends indicate that the pig iron is required to be stored for 2 months and other material for 1 month.

(vi) Finished Goods are in stock for a period of 1 month.

(vii) It is estimated that ¼ of the total sales are on cash basis and the remaining sales are on credit. Credit sales are collected over a period of 2 months.

(viii) Average time-lag in payment of all overheads is 1 month and labour is ½ month.

(ix) Desired cash balance to be maintained is ₹20,00,000.

You are required to ascertain the net working capital requirement of the company. [12]

Answer:

DETERMINATION OF NET WORKING CAPITAL OF ADITYA BIRLA LTD.

Particulars	₹
1. Current Assets:	
Minimum desired cash balance	20,00,000
Raw Materials:	
Pig Iron (1,80,000 × ₹65 × $\frac{2}{12}$)	19,50,000
Ferro Alloys (1,80,000 × ₹15 × $\frac{1}{12}$)	2,25,000
Cast iron Borings (1,80,000 × ₹10 × $\frac{1}{12}$)	1,50,000
Work – in –process (1,80,000 × ₹132.5 × $\frac{1}{24}$)	9,93,750
Finished Goods (1,80,000 × ₹180 × $\frac{1}{12}$)	27,00,000
Debtors (1,80,000 × $\frac{3}{4}$ × ₹ 230 × $\frac{2}{12}$)	51,75,000
Total (A)	1,31,93,750
2. Current Liabilities:	
Creditors:	
Pig Iron (1,80,000 × ₹65 × $\frac{2}{12}$)	19,50,000
Ferro Alloys (1,80,000 × ₹15 × $\frac{1}{24}$)	1,12,500
Cast iron Borings (1,80,000 × ₹10 × $\frac{1}{12}$)	1,50,000
Wages (1,80,000 × ₹50 × $\frac{1}{24}$)	3,75,000
Total overheads [1,80,000 × ₹(40+30) × $\frac{1}{12}$]	10,50,000
Total (B)	36,37,500
WORKING CAPITAL REQUIREMENT (A – B)	**95,56,250**

Working Notes:

(i) Determination of Work-in-process:

	₹	₹
Pig Iron		65
Ferro alloys		15
Cast iron Borings (0.5 × ₹10)		5
Other costs:		
Cast iron Borings (0.50 × ₹5)	2.5	
Direct labour (0.5 × ₹50)	25	
Manufacturing & administrative overheads (0.50 × ₹40)	20	47.50
Total		**132.50**

(ii) Debtors:

	₹
Raw Materials	90
Direct labour	50
Manufacturing & administrative overheads	40
Selling overheads	30
Excise duty (0.10 × ₹200)	20
Total	**230**

(iii) Cost of Production:

	₹
Raw Materials	90
Direct labour	50
Manufacturing & administrative overheads	40
Depreciation	20
Cost of Production	**200**

b) Write a note on GATT. **[3]**

Answer:

THE GENERAL AGREEMENT ON TARIFFS AND TRADE (GATT):

1) GATT was a treaty, not an organization.

2) Main objective of GATT was the reduction of barriers to international trade through the reduction of tariff barriers, quantitative restrictions and subsidies on trade through a series of agreements.

3) It is the outcome of the failure of negotiating governments to create the International Trade Organization (ITO).

4) The Bretton Woods Conference had introduced the idea of an organization to regulate trade as part of a larger plan for economic recovery after World War II. As governments negotiated the ITO, 15 negotiating states began parallel negotiations for the GATT as a way to attain early tariff reductions. Once the ITO failed in 1950, only the GATT agreement was left.

5) The functions of the GATT were taken over by the World Trade Organization which was established during the final round of negotiations in early 1990s.

Question.4

a) Short Co. Ltd., who holds shares of Large Co. Ltd. and is concerned about the fall in its dividends. The abridged profit & loss account and the Balance Sheet of Large Co. for the current 2 years are provided below.

ABRIDGED PROFIT & LOSS ACCOUNT

(₹ IN LACS)

PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
Income from sales & other sources	19,200	15,500
Expenditure:		
Operating & other expenses	15,600	11,900
Depreciation	700	650
Interest	1,850	1,750
	18,150	14,300
Profit for the year	1,050	1,200
Taxes	500	200
Profit after Taxes	550	1,000
Proposed Dividend	200	400

ABRIDGED BALANCE SHEET AS ON MARCH 31ST

(₹ IN LACS)

PARTICULARS	CURRENT YEAR	PREVIOUS YEAR
Sources of funds:		
Share Capital (of ₹10 each)	4,200	2,600
Reserves & Surplus	7,550	1,200
Convertible portion of 12.5% debentures	-	500
Loan Funds:		
Secured Loans (16%)	10,100	8,700
Unsecured Loans (15%)	1,000	3,300
Total	22,850	16,300
Application of Funds:		
Fixed assets:		
Cost	14,800	11,200
Less: Depreciation	2,700	2,000
	12,100	9,200
Advances on capital A/c and capital work–in-process	1,000	200
	13,100	9,400
Current Assets:		
Inventories	8,600	7,100
Sundry Debtors	1,400	550
Cash and Bank Balances	850	680
Loans and Advances	3,000	1,600
	13,850	9,930
Less: Current Liabilities	4,100	3,030
	9,750	6,900
Total	22,850	16,300

You are required to:

(i) Compute – Interest cover, return on net worth, earnigs per share, dividend cover

(ii) Justify whether the shares are to be disposed off or retained [6+2]

Answer:

(i) Computation of the ratios

(₹ IN LACS)

	CURRENT YEAR	PREVIOUS YEAR
Sales and other Income	19,200	15,500
Less: Operating and other expenses	15,600	11,900
Depreciation	700	650
Earnings before Interest and Taxes (EBIT)	2,900	2,950
Less: Interest	1,850	1,750
Earnings Before Taxes (EBT)	1,050	1,200
Less: Taxes	500	200
Earnings After Taxes (EAT)	550	1,000
Proposed Dividend (D_p)	200	400
Interest Coverage Ratio = $\frac{EBIT}{Interest}$	1.57	1.69
Return on Net Worth = $\frac{EAT}{Net\,Worth}$	0.047	0.263
Earnings per Share = $\frac{EAT}{Number\,of\,shares}$	1.31	3.85
Dividend Covered = $\frac{EAT}{D_p}$	2.75	2.50

1. Net worth Calculation:

   Previous Year = ₹(2,600 +1,200) = ₹3,800

   Current Year = ₹(4,200 + 7,550) = 11,750

2. Number of Shares:

   Previous Year = 260 lakh

   Current Year = 420 lakh

(ii) The aspects of the operations of Large Co. Ltd, is having a sharp decline in the current year wrt the previous year. These are indicated by the financial ratios. Hence on a prima facie case the shares should be disposed off.
However the co has raised additional funds (equity and secured loans), during the current financial year, which have been invested in fixed assets and blocked in capital work-in-progress. The firm seems to be in a growing stage with plans of expansion, hence having a positive impact on EPS and DPS. Hence it may be a judicious decision to hold onto the shares of Large Co. Ltd.

b) The following information is available in respect of the rate of return on investment (r), the capitalization rate (k_e) and earnings per share (E) of Amit Ltd.

r = 12%

E = ₹30

Determine the values of the shares, assuming the following:

	D/P Ratio	Retention Ratio	K_e (%)
A	**10**	**90**	**20**
B	**20**	**80**	**19**
C	**30**	**70**	**18**
D	**40**	**60**	**17**
E	**50**	**50**	**16**
F	**60**	**40**	**15**
G	**70**	**30**	**14**

[7]

Answer:

COMPUTATION OF VALUE OF SHARES IN DIFFERENT COMBINATIONS

	D/P Ratio (1-b)	Retention Ratio (b)	Price of share $P=\frac{E(1-b)}{k_e-br}$	Growth Rate = $b \times r$
A	10	90	$P=\frac{30(1-0.9)}{0.20-0.108}=\frac{3}{0.092}$ = ₹32.60	0.9 × 0.12 = 0.108
B	20	80	$P=\frac{30(1-0.8)}{0.20-0.096}=\frac{6}{0.104}$ = ₹57.69	0.8 × 0.12 = 0.096
C	30	70	$P=\frac{30(1-0.7)}{0.20-0.084}=\frac{9}{0.116}$ = ₹77.58	0.7 × 0.12 = 0.084
D	40	60	$P=\frac{30(1-0.6)}{0.20-0.072}=\frac{12}{0.128}$ = ₹93.75	0.6 × 0.12 = 0.072
E	50	50	$P=\frac{30(1-0.5)}{0.20-0.060}=\frac{15}{0.14}$ = ₹107.14	0.5 × 0.12 = 0.060
F	60	40	$P=\frac{30(1-0.4)}{0.20-0.048}=\frac{18}{0.152}$ = ₹118.42	0.4 × 0.12 = 0.048
G	70	30	$P=\frac{30(1-0.3)}{0.20-0.036}=\frac{21}{0.164}$ = ₹128.04	0.3 × 0.12 = 0.036

Note:

As per Gordon's model share price is determined as follows:

$$P=\frac{E(1-b)}{k_e-br}$$

Where,

P = Price of a share
E = Earnings per share
b = Retention ratio
(1 – b) = D/P ratio
k_e = Capitalisation Rate
r = Rate of return on investment
br = Growth rate = b × r

Question.5

a) Rajjan Ltd. is considering the acquisition of a large equipment for ₹12,00,000. The equipment is expected to have an economic useful life of 8 years. The equipment can be financed either with a 8-year term loan at 14%, repayable in equal installments of ₹2,58,676 per year, or by an equivalent amount of lease rent every year. In both case payment is due at the end of the year. The equipment is subject to straight line method of depreciation for tax purposes. Assuming no salvage value after the 8-year useful life and 50% tax rate, which of the financing alternatives should be selected? [10]

Answer:

PV of cash inflows under leasing alternative

Year end	Lease payment after taxes (L) (1 – 0.5)	PV factor at 0.07 (k_d)	Total PV
1 – 8	₹1,29,338	5.971	₹7,72,277

Determination of interest and capital components of loan installment

Year end	Loan Installment	Loan at the beginning of the year	Payment of		Principal outstanding at the end of the year (Col 3 – Col 5)
			Interest (Col 3 × 0.14)	Principal (Col 2 – Col 4)	
Col 1	2	3	4	5	6
1	₹2,58,676	₹12,00,000	₹1,68,000	₹90,676	₹11,09,324
2	2,58,676	11,09,324	1,55,305	103,371	10,05,953
3	2,58,676	10,05,953	1,40,833	1,17,843	8,88,110
4	2,58,676	8,88,110	1,24,335	1,34,341	7,53,769
5	2,58,676	7,53,769	1,05,528	1,53,148	6,00,621
6	2,58,676	6,00,621	84,087	1,74,589	4,26,032
7	2,58,676	4,26,032	59,644	1,99,032	2,27,000
8	2,58,676	2,27,000	31,676	2,27,000	-

PV of cash outflows under buying alternative

Year end	Loan Installment	Interest	Principal Outstanding	Tax Advantage on		Cash outflows after tax [Col 2 – (Col 5+ Col 6)]	PV factor at 0.07	Total PV
				Interest (I × t)	Depreciation (D × t)			
Col 1	2	3	4	5	6	7	8	9
1	₹2,58,676	₹1,68,000	₹11,09,324	₹84,000	₹75,000	₹99,676	0.935	93,197
2	2,58,676	1,55,305	10,05,953	77,652	75,000	1,06,024	0.873	92,559
3	2,58,676	1,40,833	8,88,110	70,416	75,000	1,13,260	0.816	92,420
4	2,58,676	1,24,335	7,53,769	62,167	75,000	1,21,509	0.763	92,711
5	2,58,676	1,05,528	6,00,621	52,764	75,000	1,30,912	0.713	93,340
6	2,58,676	84,087	4,26,032	42,043	75,000	1,41,633	0.666	94,328
7	2,58,676	59,644	2,27,000	29,822	75,000	1,53,854	0.623	95,851
8	2,58,676	31,676	-	15,838	75,000	1,67,838	0.582	97,682
								7,52,088

The borrowing (buying) alternative of financing the purchase of the large equipment should be selected.

b) Arjun Ltd furnishes the following information for the year, 2014 from which you are requested to determine the indifference point.

(i) Funds required, ₹50,000

(ii) Existing number of Equity shares outstanding, 5000 @ ₹10 per share

(iii) Existing 10% debt, ₹20,000

(iv) Funds required can be raised either by

1. **issue of 2,000 equity shares, netting ₹25 per share or**
2. **new 15% debt**

(v) The P/E Ratio will be 7 times in equity alternative and 6 times in debt alternative

(vi) Corporate tax is levied @ 40% **[5]**

Answer:

Indifference point $\Rightarrow \frac{(x-I_1)(1-t)}{N_1} = \frac{(x-I_1-I_2)(1-t)}{N_2}$

Where,

x = Earnings before interest and taxes (EBIT), at the indifference point

I_1 = Interest payable on existing debt

I_2 = Interest payable at additional debt

N_1 = Number of equity shares, if only equity shares are issued

N_2 = Number of equity share if both debt and equity is issued

t = Corporate income tax rate

Hence, as per the above details:

Indifference point $\Rightarrow \frac{(x-2000)(1-0.4)}{7000} = \frac{(x-2000-7500)(1-0.4)}{5000}$

or, $\frac{(x-2000)0.6}{7000} = \frac{(x-9500)0.6}{5000}$

or, $5(0.6x-1200) = 7(0.6x-5700)$

or, $x = 28,250$

Question.6

a) The spot rate on 1st April, 2014 is 1.785/£. Pound futures contract is sold at $1.790 for June Delivery and at $1.785 for September delivery. Expecting that pound will depreciate fast after June, a speculator buys the former and sells the latter. Later he finds that pound may appreciate by June and may not depreciate subsequently. So he reserves the two contracts respectively at $1.78 and $1.76. Suppose the exchange rate on both the maturity dates is $1.795/£. Calculate the gain/loss for the speculator. **[6]**

Answer:

(i) Buying pound futures contract:

Gain per pound from the original contract = $1.795 – 1.790 = $ 0.005 and

Gain from the reverse contract = $1.795 – 1.760 = $ 0.035

Total gain $ 0.040/£

(ii) Selling pound futures contract:

Loss per pound from the original contract = $ 1.795 – 1.785 = $ 0.010 and

Loss from the reverse contract = $ 1.795 - 1.780 = S 0.015

Total Loss $0.025/£

(iii) ∴ **Net Gain =** $0.040 - $0.025 = $ 0.015/£

Net gain in total = $ 0.015/£ × 62500£ = $ 937.50

b) Evaluate the following:

(i) A pound option call contract has a strike rate of $1.820/£ and a premium of $0.08. Spot rate on maturity is $1.920/£.How much would an option buyer gain/lose?

(ii) An American exporter exporting goods to UK fears depreciation of pound. Pound options are available at a strike price of $1.884/£with a premium of $0.03/£. The spot rate on maturity falls to $1.824/£. How would he compensate for his loss?

(iii) Pound is expected to depreciate to $1.730. Pound options are available at a strike price of $1.830/£ with a premium of $0.03/£. How would speculators react to the depreciation of pound? [3+3+3]

Answer:

i) Since spot rate > strike rate + premium, hence the option buyer would gain.

Gain to the buyer = $1.920 – $(1.820 + 0.08) = $ 0.02/£

Total gain to the buyer of a lot = $ 0.02/£ × 62,500£ = $1,250

ii) The exporter will buy a put and sell a call.

Put would give him a gain of $ 1.884 - $(1.824+0.03) = $0.03/£

Call would not be exercised by the buyer and so, as a seller of the call, the exporter will receive the premium of $0.03/£. Consequently, the risk would be reduced by $0.06

Total risk would be reduced to the extent of = $ 0.06/£ × 62,500£ = $3,750.

iii) Speculator will buy a put.

On the maturity, he would get by selling $1.830/£ × 62,500£ = $ 1,14,375.

He would sell the $ immediately at the open market @ $1.730/£

Hence his gain would be $1.830 - $(1.730 + 0.03) × 62,500£ = $4,375

Question.7

a) Rahul Co ltd. has 20,000 equity shares of ₹50 each outstanding. The following is the income statement relating to the previous year as well as four situations which may arise corresponding to the new project. The new project is expected to cost ₹5,00,000.

Particulars	Actuals (Previous Yr) ₹	Sell 10,000 equity shares (₹)		Sell 10% Debentures (₹)	
		Situation A	Situation B	Situation A	Situation B
Sales	**8,00,000**	**12,00,000**	**9,00,000**	**12,00,000**	**9,00,000**
Variable Expenses	**2,40,000**				
	5,60,000				
Fixed Cost	**3,00,000**				
EBIT	**2,60,000**				
Interest	**Nil**				
Earnings after interest	**2,60,000**				
Taxes	**91,000**				
EAT	**1,69,000**				
EPS	**8.45**				

Assuming variable cost as per cent of sales remains constant and additional fixed cost with new project is likely to be ₹1,00,000, complete the tabulation. Which plan would you recommend to finance the new project? [8]

Answer:

COMPLETION OF TABLE

(AMOUNT IN ₹ THOUSAND)

Particulars	Actuals (Previous Yr) ₹	Sell 10,000 equity shares (₹)		Sell 10% Debentures (₹)	
		Situation A	Situation B	Situation A	Situation B
Sales	800	1200	900	1200	900
Variable Expenses (30% of Sales)	240	360	270	360	270
	560	840	630	840	630
Fixed Cost	300	400	400	400	400
EBIT	260	440	230	440	230
Interest	Nil	Nil	Nil	Nil	Nil
Earnings after interest	260	440	230	390	180
Taxes @35%	91	154	80.5	136.5	63
EAT	169	286	149.5	253.5	117
EPS	8.45	9.53	4.98	12.67	5.85

The debt form of financing would be recommended to finance the new project as the EPS is more under debt form of financing than equity, in both situation A and situation B.
Assumption: The company can sell its equity shares at ₹50 each without incurring any floatation costs.

b) CMC Ltd wants to undertake a capital restructuring. It has provided the following estimates of the cost of debt and equity capital (after Tax) at various levels of debt-equity mix.

Debt as a % of Total Capital employed	Cost of debt (%)	Cost of Equity (%)
0	**5.0**	**12.0**
10	**5.0**	**12.0**
20	**5.0**	**12.5**
30	**5.5**	**13.0**
40	**6.0**	**14.0**
50	**6.5**	**16.0**
60	**7.0**	**20.0**

You are expected to determine the optimal debt-equity mix for the company by calculating the composite cost of capital. [7]

Answer:

TABLE FOR COMPUTATION OF COST OF CAPITAL

K_d (%)	K_e (%)	W_1 (B/V)	W_2 (S/V) = (1 – B/V)	$K_d(W_1) + K_e(W_2) = K_0$ (%)
5.0	12.0	0.0	1.0	12.00
5.0	12.0	0.1	0.9	11.30
5.0	12.5	0.2	0.8	11.00
5.5	13.0	0.3	0.7	10.75
6.0	14.0	0.4	0.6	10.80
6.5	16.0	0.5	0.5	11.25
7.0	20.0	0.6	0.4	12.20

Where,

K_d = Cost of debt

K_e = Cost of Equity

W_1 = Relative weight of debt

W_2 = Relative weight of Equity

B = Total market value of debt

S = Total market value of equity

V = Total value of the firm = S + B

K_0 = Cost of Capital

The optimal debt-equity mix for CMC Ltd would be at the point where the cost of capital is the least. In the above situation, the cost of capital is the least when debt is 30% and equity is 70%. Therefore, this mix of debt and equity should be undertaken by the company.

Question.8

Write a short note on any three of the following: [5+5+5]

(i) Capital Rationing

(ii) Factors affecting value of an option relating to stock option value and capital budgeting

(iii) Lease Financing

(iv) Commercial Paper

(v) Interest Rate swaps

Answer:

(i) Capital Rationing:

Capital rationing is a situation where a constraint or budget ceiling is placed on the total size of" capital expenditures during a particular period. Often firms draw up their capital budget under the assumption that the availability of financial resources is limited.

Under this situation, a decision maker is compelled to reject some of the viable projects having positive net present value because of shortage of funds. It is known as a situation involving capital rationing.

Factors Leading to Capital Rationing - Two different types of capital rationing situation can be identified, distinguished by the source of the capital expenditure constraint.

a) External Factors - Capital rationing may arise due to external factors like imperfections of capital market or deficiencies in market information which might have for the availability of capital. Generally, either the capital market itself or the Government will not supply unlimited amounts of investment capital to a company, even though the company has identified investment opportunities which would be able to produce the required return. Because of these imperfections the firm may not get necessary amount of capital funds to carry out all the profitable projects.

b) Internal Factors - Capital rationing is also caused by internal factors which are as follows:
   - Reluctance to take resort to financing by external equities in order to avoid assumption of further risk
   - Reluctance to broaden the equity share base for fear of losing control.
   - Reluctance to accept some viable projects because of its inability to manage the firm in the scale of operation resulting from inclusion of all the viable projects.

(ii) Value of an Option:

The factors which affect the value of an option are given below:

Symbol	Factor as it relates to stock option value	Factor as it relates to capital budgeting
P_o	Price of the underlying asset (i.e., stock price)	Present Value of expected operation Cash Flows discounted at the project's cost of capital
X	Exercise price	For call options-the initial investment. For put options-the value of the project's assets if sold or shifted to a more valuable use
T	Time until the option expires	Time until the option expires or is no longer available
K_{rf}	Risk-free rate of interest	Risk-free rate of interest (use the yield on U.S. T-bills)
E	Standard deviation of the underlying asset (volatility of stock price)	Project risk - standard deviation of the operating cash flow as a percent of total investment

(iii) Lease Financing:

A number of non-banking financial companies and even some banks are engaged in the business of lease financing. The leasing companies pay the full price of all required equipment and then lease them out to the lessee under a lease agreement providing for repayment of principal and interest in quarterly or monthly installments. At the end of the lease period, the ownership of the equipment is transferred to the lessee at a nominal residual value. The rate of interest charged for lease financing is higher than lending rate. The repayment capacity of the lessee is the main factor of credit worthiness.

Lease financing has several advantages. The lessee need not invest the capital in full as one time single investment. Generally, the processing time for sanctioning lease finance is fast. When the equipment is no longer needed, the lessee can terminate the agreement and ask lessor to take away the equipment. The lease installment is allowed as deductible expense for tax purpose.

Lease financing has also certain drawbacks. First the interest payment is high. Second, the leased assets do not contribute to the net worth. Third, depreciation allowance cannot be claimed during the period of lease agreement i.e. until the equipment is legally transferred in the name of lessee. Four in case of termination of lease agreement before its expiry, the installments paid towards principal are not fully refunded, because the lessor will charge penal interest for pre-closing the account and since he may not readily find another lessee to take over and use the equipment. And lastly, the lessee has no freedom to move the leased equipment from one place to another.

(iv) Commercial Paper:

Commercial paper, as a source of short -term financing of working capital needs, is a recent phenomenon. The commercial paper was introduced by RBI in early 1990 with a view to enable highly rated corporate borrowers to diversify their sources of short term borrowing. Commercial paper, as defined by Jame C. Van Home in his book Financial Management and Policy, is a short term unsecured promissory note issued by finance companies and certain industrial concerns. While the commercial paper as financial instruments is prevalent in both USA and Europe, its entry in India is recent. The Vaghul Committee set up by RBI in 1986, recommended the introduction of commercial paper with the objective of providing reasonable access to users of short term money to meet their requirements at a realistic price. In the opinion of the Committee, the commercial paper market has the advantage of giving highly rated corporate borrowers cheaper funds than they could obtain from the banks while still providing institutional investors with higher earnings than they could obtain from the banking system.

<u>The main features of commercial paper are:</u>

a) Commercial paper is an unsecured promissory note tied to any specific transaction. It is privately placed with investors through the agency of banks or other financial institution.
b) The issuing company should have a tangible net worth of Rs. 5 crores; enjoy a working capital limit of not less than Rs. 10 crores; be listed on stock exchange; obtain a minimum credit rating from an approved credit rating agency, such as CRISIL; and have a minimum current ratio of 1.33.

(v) Interest Rate Swap:

An interest rate 'swap' is an exchange of interest payments between two parties. It can also be that fixed rate payments and floating rate payments are exchanged at periodic intervals based on an underlying notional principal amount by the counterparties. This is an Interest Rate Swap. Thus Interest rate swaps are generally used for 'swapping' from a floating rate of interest into a fixed rate of interest, or vice-versa.

Interest rate swaps are used to hedge interest rate risks as well as to take on interest rate risks. If a treasurer is of the view that interest rates will be falling in the future, he may convert his fixed

interest liability into floating interest liability; and also his floating rate assets into fixed rate assets. If he expects the interest rates to go up in the future, he may do vice versa. Since there are no movements of principal, these are off balance sheet instruments and the capital requirements on these instruments are minimal. It is to be noted that individual borrowers do not perform swap though they may face similar situations with their borrowings.

Hence, Interest rate swaps may be defined as, a contract which involves two counter parties to exchange over an agreed period, two streams of interest payments, each based on a different kind of interest rate, for a particular notional amount.