The Institute of Actuaries of India

Subject CT2 – Finance and Financial Reporting

22nd May 2007

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

Arpan Thanawala
Chairperson, Examination Committee

Q.1) d

[2]

Q.2) d

[2]

Q.3) e

[2]

Q.4) c

[2]

Q.5) c

[2]

Q.6) a

[2]

Q.7) a

[2]

Q.8) c

[2]

Q.9) d

[2]

Q.10) a

[2]

Q.11) A swap is a contract between two parties under which they agree to exchange a series of payments under a prearranged formula.
Normally, one party to the swap agreement is the bank (often referred to as market maker) and the other is the company. The bank normally enters into many swap agreements. The parties involved in a swap are called counterparties.

The swap will be priced so that the present value of cash flows is slightly negative for the investor and positive for the issuing organization. The difference represents the price that the investor is prepared to pay for the advantages brought by the swap on one hand, and the issuers expected profit margin on the other.

Each counterparty to a swap faces two kinds of risk:

- Market Risk
- Credit Risk

Market risk is the risk that market conditions will change so that the present value of the net outgo under the agreement increases. The market maker hedges the market risk by entering into an offsetting agreement.
Credit risk is the risk that the other counterparty will default on its payments. This will occur if the swap has a negative value to the defaulting party so that the risk is not the same as the risk that the counterparty would default on a loan of comparable maturity.

[8]

Q.12) A scrip dividend means that a company pays shareholders a dividend by giving them new shares rather than cash.

Companies pay scrip dividends:

- When they can't afford to pay a dividend but don't want to admit it.

- Due to certain psychological reasons like:
    - Marketability: By having more, lower price shares the marketability or liquidity improves.
    - Shareholders like the idea of being given extra shares free of charge
    - Gives the shareholders the feeling that they are associated with successful companies that have built up large reserves from retained profits.

Impact on Balance Sheet:

- New Shares are created, increase in paid up capital and decrease in shareholder's reserves.
- No change in Total Shareholders Funds
- No money is raised
- No change in Balance Sheet Total

[5]

Q.13) A chargeable gain is defined as sale price minus purchase cost.

The sale price can be reduced to reflect any costs associated with the sale. The purchase cost can be increased by any costs associated with the purchase, and any expenditure made to enhance the value of asset during the period the asset was held.

Indexation allowance is computed and deducted from chargeable gains to avoid situations where the increases in nominal asset values due to inflation would be taxable.

Indexation Allowance is calculated as:
[Purchase cost * { (RPI date of sale - RPI date of purchase) / RPI date of purchase}] **plus**
[Enhancement expenditure * { (RPI date of sale - RPI date of enhancement) / RPI date of enhancement}]

[3]

Q.14) Excise duties are duties or taxes levied on goods produced and sold within the country.

These duties can be designed in such a manner so as to encourage certain patterns of consumer expenditure or to raise revenues for particular categories of government expenditure. For example, by raising excise duties on cigarettes, the government could discourage smoking and hence improve health and could also hypothecate all tax revenues from cigarettes from use in the health service.

[2]

Q.15) **CAPM Cost of Equity ($k_{s)}$**

$k_s = 5.5\% + 1.1*(11.5\%-5.5\%) = 12.10\%$.

After-tax cost of debt (k_d)

N=40 I=? PV=-889.50 PMT=36.25 FV=1,000
I=4.2

$k_d = 4.2*(2) = 8.4\%$.

k_d after-tax = 8.4%*(1-0.40) = 5.04%.

Weights for WACC

Use market values for estimating the weights, since target values are not available.
Market value of equity = V_e = Rs. 7.50*(10 million) = Rs. 75 million.
Market value of debt = V_d = Rs. 889.50*(40,000) = Rs. 35.58 million.
W_e = Rs. 75/(Rs. 75+Rs. 35.58) = 0.678 = 67.8%.
W_d = Rs. 35.58/(Rs. 75+Rs. 35.58) = 0.322 = 32.2%.

WACC

WACC = 0.678 (12.10%) + 0.322 (5.04%) = 9.83%.

[10]

Q.16)

	0	1	2	3	4	5
A: Investment (1 Mark for Investment and 1 Mark for Salvage Value)	-10					2.85 (Salvage Value – Tax on Salvage Value)
B: Opportunity Cost of Land (1 Mark)	-1					
C: Revenue (2 Marks)		10	11	12.1	13.3	14.6
D: Operating Costs (1 Mark)		6	6.6	7.26	7.99	8.78
E: Gross Profit (C-D)		4	4.4	4.84	5.32	5.86
F: Depreciation (1 Mark)		1.5	1.5	1.5	1.5	1.5
G: Profits Before Tax (E-F) (1 Mark)		2.5	2.9	3.34	3.82	4.36
H: Tax (1 Mark)		0.75	0.87	1	1.15	1.31
I: Profit After Tax		1.75	2.03	2.34	2.68	3.05
J: Operating Cash Flow (I + F) (1 Mark)		3.25	3.53	3.84	4.18	4.55
K: Change in Net Working Capital (1 Mark)	-1	-0.1	-0.11	-0.12	-0.13	1.46
L: Net Cash Flow (A+B+J+K) (1 Mark)	-12	3.15	3.42	3.72	4.04	8.86

Calculate the NPV of the cash flows in step L above using 20 % discount rate. It will be + 0.60 crores

As NPV is positive Investment should be made.

[14]

Q.17) Accounting practices that can lead to manipulation of reported figures are: -

- Inappropriate depreciation of tangible assets

- Inappropriate amortization of intangible assets
- Inappropriate valuation of stock and inventories
- Inappropriate valuation of future liabilities
- Unwarranted revaluation of tangible assets
- Creating intangible assets of questionable true worth
- Omitting contingent liabilities
- 'Prebooking' of anticipated sales revenues

[14]

Q.18)

a)

- The expected return to equity shareholders is

$$\frac{\text{Post-tax earnings}}{\text{Market capitalization}}$$

- Assuming that the market price of the equity shares remained the same before and after the gearing, the expected return of both companies are as follows: -

$$\text{True Ltd} = \frac{(10,00,000 - 4,50,000) * 100}{4,00,000 * 10}$$
$$= 13.75\%$$

$$\text{False Ltd} = \frac{10,00,000 * 100}{10,00,000 * 10}$$
$$= 10.00\%$$

- The expected return of True Ltd is greater than False Ltd by a reasonable margin. Thus the statement is true.

b)

- The return being earned on assets is 10% for both the companies

$$\frac{10,00,000 \times 100}{1,00,00,000} = 10\%$$

If the return increases to say 12%, then both companies will earn Rs. 12,00,000

- Shareholders will see an increase in their expected return

$$\text{True Ltd} = \frac{(12,00,000 - 4,50,000) * 100}{4,00,000 * 10}$$
$$= 18.75\%$$

$$\text{False Ltd} = \frac{12,00,000 * 100}{10,00,000 * 10}$$

= 12.00%

- Clearly the proportionate increase in expected returns for equity investors in Company True Ltd (36.36%) is greater than it is in Company False Ltd (20%). Thus this statement is correct.

[5]

Q.19)

a) Ratios are: -

i. Net dividend yield = $\frac{\text{Net dividend per share}}{\text{Market price of an ordinary share}}$

ii. Dividend Cover (net basis) = $\frac{\text{Earnings per share}}{\text{Net dividend per share}}$

iii. P/E ratio = $\frac{\text{Market price per share}}{\text{Earnings per share}}$

b) The relationship between the 3 ratios is: -

P/E Ratio = $\frac{1}{\text{Net dividend yield x Dividend cover (net basis)}}$

- Net dividend yield = Gross dividend yield x (1- tax rate)
  = 2.25% x (1-0.10)
  = 2.025%

- P/E Ratio = $\frac{1}{2.025\% \times 1.9}$

= 26.0 times

c)

- **P/E Ratio**
- Market price of the share encapsulates everything the market knows about the company.
- Earnings are the net profit available to ordinary shareholders, i.e. after tax and preference dividends.
- Relating the market price to the earnings gives an insight into the market's view of the company's performance.
- A high P/E ratio suggests that the market considers the company to be an attractive investment. This may be because
  - The earnings are expected to grow rapidly
  - The share is low risk
- Alternatively the share could be overvalued.
- **Dividend yield**
- The dividend yield shows the income (dividend) the investor can expect from his/her investment (the share price).
- A high dividend yield can mean that:
  - The share is undervalued
  - The dividend is expected to fall
  - The share is a high-risk investment.

[8]

Q.20)

a) Calculation of Depreciation: -

- Factory
  - Cost 3,800.00
  - Less: Depreciation as on 1st january'2006 -456.00
    (3,800.00/25=152.00 *3)
  - Less: Depreciation for the year 2006 -152.00
    (3,800.00/25=152.00 *1) 3,192.00

- Vehicles
  - Cost 960.00
  - Less: Depreciation as on 1st january'2006 -232.50
    - $1 - \left(\frac{60.00}{960.00}\right) \wedge (1/20) = .1295$

    i.e. 12.95%
    - 960.00 * [(1- 0.1295)] ^ (2) = 727.50
    - 960.00 – 727.50 = 232.50
  - Less: Depreciation for the year 2006 -94.20
    - 727.50 * 0.1295 = 94.20 633.30

- Machinery
  - Cost 3,000.00
  - Less: Depreciation as on 1st january'2006 -1,200.00
    (3,000.00/10=300.00 *4)
  - Less: Depreciation for the year 2006 -300.00

(3,000.00/10=300.00 *1) 1,500.00

b) ABC Plc

Profit and loss account for the year ended 31st December'2006

		Fig in Rs'000
Sales		27,000.00
Cost of sales	(i.)	-16,457.00
Gross Profit		10,543.00
Operating expenses	(ii.)	-2,816.20
Operating profit		7,726.80
Interest payable	(iii.)	-290.00
Profit on ordinary activities before taxation		7,436.80
Taxation (30%)		-2,231.00
Profit on ordinary activities after taxation		5,205.80
Dividend paid		-48.00
Dividend proposed	(iv.)	-248.00
Retained profit for the year		4,909.80
Retained profit brought forward		561.50
Retained profit carried forward		5,471.30

Working Notes

i. Cost of sales

Opening stock		5,500.00
Add: purchases		17,232.00
Add: Factory rent & insurance		500.00
Add: Factory heat & lighting	(460.00+15.00)	475.00
Less: closing stock		-7,250.00
		16,457.00

ii. Operating expenses

▪ Administrative salaries		1,200.00
▪ Telephone expenses		220.00
▪ Advertising expenses		650.00
▪ Audit Fees		200.00
▪ Depreciation		
o Factory	152.00	
o Vehicles	300.00	
o Machinery	94.20	546.20
		2,816.20

iii. Interest payable

▪ Debentures interest (12%*2,000.00)	240.00
▪ Bank overdraft interest	50.00
	290.00

iv. Dividend proposed

▪ Preference shares (8%*1,200.00 Less 120.00)	48.00
▪ Equity shares (10000 shares @ 0.02 per share)	200.00
	248.00

c) Balance sheet as at 31st December'2006.

			Fig in Rs'000
Fixed Asset (cost)	7,760.00		
Less: Depreciation to date	-2,434.70		5,325.30
Current Assets			
▪ Stock	7,250.00		
▪ Debtors	1,900.00		
▪ Prepaid insurance	60.00	9,210.00	
Current Liabilities			
▪ Creditors	500.00		
▪ Provision for taxation	2,231.00		
▪ Provision for interest	120.00		
▪ Dividend payable	248.00		
▪ Outstanding electricity payment	15.00		
▪ Bank overdraft	250.00	-3,364.00	
Net Current Assets			5,846.00
			11,171.30
Long Term Liabilities			
▪ 12% Debentures 2015			2,000.00
Share Capital & Reserves			
▪ Equity share capital	2,500.00		
▪ 8% Preference share capital	1,200.00		
▪ Profit and loss account	5,471.30		9,171.30
			11,171.30

d)

- The depreciation charge should be based on the estimated useful lives of the assets. These should reflect the underlying nature of the assets themselves and should be factually correct to the extent that it is possible for such an estimate to be so.

- If the directors were to distort this information with the intention of distorting the annual report then it would amount to deliberately misleading the shareholders and anyone else reading the financial statements. Apart from being morally wrong, this would be a criminal offence.

- The company's auditors might identify the distortion and ask for an alteration to the statements. If this was not made then they might find it necessary to qualify their audit report.

- The directors are also required to disclose their main accounting policies. If they are seen to be depreciating the company's assets at a slower rate than the industry norm then their scheme will simply draw attention to the fact that profit has been overstated.

[21]

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