

Institute of Actuaries of India

CT2: Finance and Financial Reporting

Indicative Solution

November 2008

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

Indicative Solution

- | | | |
|-----|---|-----|
| 1. | 3 | [2] |
| 2. | 4 | [2] |
| 3. | 2 | [2] |
| 4. | 2 | [2] |
| 5. | 1 | [2] |
| 6. | 2 | [2] |
| 7. | 2 | [2] |
| 8. | 3 | [2] |
| 9. | 3 | [2] |
| 10. | 2 | [2] |

11.

- a)
1. **Arbitrage** – The simultaneous buying and selling of two economically equivalent but differently priced portfolios so as to make a risk – free profit.
 2. **Chinese walls** – Regulations intended to prevent conflicts of interest in integrated security firms.
 3. **Operational risk** – Operational risk is the risk of loss due to fraud or mismanagement within the fund management organization itself.
 4. **Zero coupon yield curve** – A plot of redemption yields against term to redemption for (usually hypothetical) zero – coupon bonds.

- b) Payment received by factor is –

<u>Name of customer</u>	<u>Amount</u>	<u>Date</u>
• Sheena Private Ltd	Rs. 18,000/-	1 st Jan 2007
• Presha Private Ltd	Rs. 13,500/-	16 th Jan 2007
• Zehrab Private Ltd	Rs. 45,000/-	1 st Mar 2007
• Vanita Private Ltd	Rs. 22,500/-	1 st May 2007
• Sophia Private Ltd	<u>Rs. 4,500/-</u>	1 st June 2007
	<u>Rs. 1, 03,500/-</u>	

Payment retained by factor Rs 1, 15,000/- less 1, 03,500/- = Rs.11, 500/-.
Interest @ 3% p.a. for loan.

Sheena	– 5,000 x 3% x 1 = 150		
	– 15,000 x 3% x 3 = <u>1,350</u>	<u>1,500</u>	
Presha	– 10,000 x 3% x 1.5 = 450		
	– 5,000 x 3% x 2.5 = <u>375</u>	<u>825</u>	
Zehrab	– 20,000 x 3% x 1 = 600		
	– 20,000 x 3% x 2 = 1,200		
	– 10,000 x 3% x 4 = <u>1,200</u>	<u>3,000</u>	
Vanita	– 20,000 x 3% x 1 = 600		
	– 5,000 x 3% x 2 = <u>300</u>	<u>900</u>	
Sophia	– 5,000 x 3% x 1 = <u>150</u>	<u>150</u>	<u>6,375/-</u>

The factor will repay back Rs. 5,125/- to company ABC Ltd after deducting Rs 6,375/- towards interest payment.

Note: In the question, it is inadvertently mentioned that Rs. 20000 was received from Vanita Pvt Ltd on 30 April 2007, instead of 31 May 2007. The necessary correction was announced at all centres. In case the student has not incorporated that only one figure highlighted in bold above pertaining to Vanita Pvt Ltd will be different and no penalty has been imposed and full credit has been given if all other figures are correct./

[8]

12.

a. A chargeable gain is defined as sale price less purchase cost; where the sale price can be reduced to reflect any costs associated with the purchase and any expenses incurred to enhance the value of the asset while it was held.

Taxable Gain = Sale price less sale costs – Purchase price less property development costs
 $(1, 20,000 - 12,000) - (60,000 + 20,000)$
 $= 28,000$

$(28,000 - 25,000) * 0.2 = 3,000 * 0.2 = \text{Rs } 600/-$

Individual Allowance is the allowance which can be deductible from income before arriving at taxable income.

The property is only held for 2 years and hence the capital gains will be classified as short-term gains and hence cannot be offset even if the proceedings are invested in buying another property.

b. The various adjustments that are to be made by A&A to the accounts of ABC Plc are:

1. Add back any business expenses or any other expenditure that are not allowable.
2. Add back depreciation and deduct the capital allowance.
3. Deduct any special relief's e.g. research and development.

[6]

13.

a. A Scrip issue is where the company gives free shares to all ordinary shareholders in proportion to their existing holding. There is no payment required from the shareholders.

b. With a scrip issue new shares are created without new money being raised with the fundamental value of the company being unchanged.

On theoretical grounds, an n-for-m scrip issue should reduce the share price from P to $P * (m/(m+n))$ on the basis of an assumption that the market is indifferent to the scrip issue. The actual change in the share price might move the share price in one way or the other. The share price would increase slightly if the psychological factors win through or the share price would decrease slightly if the market decides that the cost of the issue outweighs the benefits.

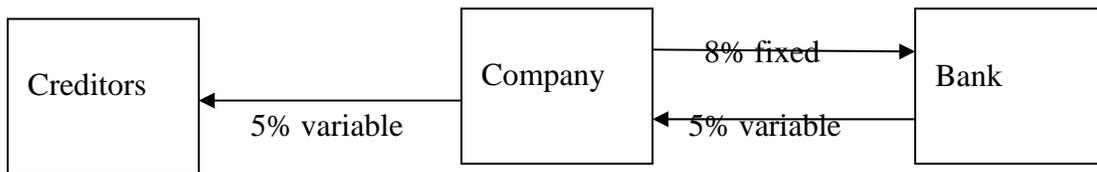
It is possible that other events influencing the share price could occur on the day of scrip issue and the share price might move significantly. Due to the link between the successful

companies and scrip issue the share price following a scrip issue might move more quickly than the rest of the market in the long term.

c. In the most common form of interest rate swap one party agrees to pay to the other a regular series of fixed amounts for a certain term. In exchange, the second party agrees to pay a series of variable amounts based on the level of a short-term interest rate. Both sets of payments are in the same currency.

The fixed payments can be thought of as interest payments on a deposit at a fixed rate, while the variable payments are the interest on the same deposit at a floating rate. The deposit is purely a notional one; no exchange of principal takes place.

A company borrows at a variable rate and wants to reduce its exposure to changes in short-term interest rates using an interest rate swap. In order to reduce its exposure to the changing interest rates the company would like to enter into an interest rate swap with a Bank where it pays a fixed 8% p.a. fixed interest and in return receive a 6-month variable interest rate.



Although it borrowed from its creditors on variable rate interest its net cash flow is now fixed. The company has removed its exposure to increases (and decreases) in short-term interest rates.

One of the ways in which the interest rate swaps can be used by the companies to reduce the overall cost of debt. Assume that one company is having a comparative advantage in borrowing in floating rate where as the other is having a comparative advantage in borrowing in fixed rate then by entering into an interest rate swap it is possible to reduce the cost of the borrowing.

For example, assume

ABC Plc can borrow at 0.5% over government bonds or 0.5% over the 6-month variable interest rate and XYZ Plc can borrow at 0.3% over government bonds and 0.8% over 6-month variable rate. ABC Plc and XYZ Plc can enter in to an interest rate swap so that the ABC Plc can reduce the cost of borrowing at fixed rate and XYZ Plc can reduce the cost of borrowing at a floating rate. [9]

14.

- i. The expected rate of return from the market

$$= \text{risk free return} + \text{equity risk premium}$$

$$= 6\% + 7\% = 13\% \text{ p.a.}$$

- ii. The expected rate of return from the equity fund

$$= \text{risk free return} + \text{beta} * (\text{equity risk premium})$$

$$= 6\% + 1.2 * 7\% = 14.4\% \text{ p.a.}$$

The expected rate of return from the bond fund is same as the risk free rate of return and is 6% p.a.

iii. The return that is to be used to compare is the weighted average cost of capital and can be calculated using the formula

Proportion invested in Bond Fund * Return from investing in Bond Fund + Proportion invested in Equity Fund * Return from investing in Equity Fund

$$=(1400/2000) * 6\% + (600/2000) * 14.4\% = 8.52\% \quad [5]$$

15. ASSETS

Non – current assets

Tangible assets (**)	1, 80,000
Intangible assets	60,000

Current assets

Inventories (**)	75,000	
Cash (**)	45,000	<u>1, 20,000</u>
	(**)	<u>3, 60,000</u>

EQUITY AND LIABILITIES

Ordinary share capital (**)	1, 50,000
10% Unsecured Loan Stock	1, 50,000

Current Liabilities	<u>60,000</u>
	<u>3, 60,000</u>

Working Notes –

$$\text{Current Ratio} = \frac{\text{Current Assets...}}{\text{Current Liabilities}} = 2 \Rightarrow \text{Current Assets} = 2 \times 60000 = 1, 20,000$$

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventories (I)}}{\text{Current Liabilities}} = 0.75$$

$$= 1, 20,000 - \text{Inventories (I)} = 60,000 \times 0.75$$

$$= 1, 20,000 - 45,000 = \text{Inventories (I)}$$

$$= 75,000 = \text{Inventories (I)}$$

$$\text{Cash} = \text{Current Assets} - \text{Inventories} = 45000$$

$$\text{Asset Gearing} = \frac{\text{Borrowings}}{\text{Borrowings} + \text{Equity}} = 0.50$$

$$= 1, 50,000 = \{1, 50,000 + \text{Equity}\} \times 0.50$$

$$= 3, 00,000 - 1, 50,000 = \text{Equity}$$

$$= \text{Equity} = 1, 50,000$$

$$\text{Asset Cover} = \frac{\text{Total assets} - \text{current liabilities} - \text{Intangibles}}{\text{Borrowings}} = 1.60$$

$$= \frac{\text{Total assets} - 60000 - 60000}{\text{Borrowings}} = 1.60$$

$$1, 50,000$$

$$= \text{Total Assets} = 3, 60,000$$

[5]

16.

a)

- I. An associated undertaking is one which is not a subsidiary, but which is subject to significant influence by the holding company. There is normally a presumption that significant influence would arise if the holding company owned more than 20% of the associate's voting rights.
- II. Holding company is a company which holds shares in other companies. A subsidiary is a company controlled by a holding company. This control may be through holding a majority of voting rights or by being able to appoint or remove directors holding a majority of voting rights at board meetings.
- III. The minority interest is the value of the share capital and reserves provided by the subsidiary's minority shareholders.

- b) Y Ltd is a subsidiary because W Ltd controls a majority of voting rights.
 X Ltd is a subsidiary because W Ltd controls a majority of the board.
 Z Ltd is an associated company.

[6]

17.

a.

Project	Initial Investment	NPV	PI	IRR
I	10	3 0	.30	21%
II	5	2.5	0.50	28%
III	15	4	0.27	19%
IV	10	4 0	.40	24%
V	5	2 0	.40	20%

- i. The PI would suggest that the firm invest in projects II, IV and V.
- ii. The IRR of project I is higher than the IRR of project V.
- iii. The differences arise because of the reinvestment rate assumptions ; with the IRR, intermediate cash flows are reinvested at the IRR; with the PI, cash flows are reinvested at the cost of capital.

b.

There is no cost of salary in the first three years. The after-tax salary paid in last two years is an opportunity cost = $80,000 * 0.6 / (1.1)^4 + 80,000 * 0.6 / (1.1)^5 = 62,589$

The opportunity cost associated with excess capacity is the difference in PV of investing in year 4 instead of year 8 = $250,000 / (1.1)^4 - 250,000 / (1.1)^8 = \$54,126$

If you consider depreciation, you would have to include the fact that there will be more depreciation tax benefits between years 4 and 8 as well.

The present value of after-tax rental payments over five years is the opportunity cost = $(3000 * 0.6) (PVA, 10\%, 5 \text{ years}) = \$6,823$

After-tax cash flow = $(400,000 - 160,000) - (240,000 - 100,000) * 0.4 = \$184,000$

$$NPV = -500,000 - 62,589 - 54,126 - 6,823 + 184,000(1-(.1.1)^{-5})/.1 = \$73,967.$$

Since NPV is positive, investment should be made.

c. In capital project appraisal the other criteria that the companies would want to consider are:

1. Net Present value at a given hurdle rate.
2. Internal rate of return.
3. Annual capital charge.
4. Shareholder value.
5. Nominal returns.
6. Payback period.
7. Discounted payback period.
8. Opportunity cost of choosing one project for the other.
9. Hurdle rate.
10. Receipts / costs ratio.

In order to decide on the project it is not known from the given question what is the required return or hurdle rate required by the company and in the absence of that information it cannot be decided on whether the projects meets the return criteria of the company. [21]

18. a) The balance sheet summarises the company's financial position.

Balance sheet is a snapshot of events at one point in time.

Everything of value which is owned by a business is called an "asset".

Finance can be provided by the owners of the business ("capital") or by third parties ("liabilities").

b)

Post Company
Income Statement
for the Year Ended December 31, 2003

Sales		Rs.259,000
Cost of Goods Sold		<u>(135,500)</u>
Gross Margin		123,500
Operating Expenses:		
Selling Expenses*	Rs.22,000	
General and Administrative Expenses**	<u>10,000</u>	
Total Operating Expenses		<u>(32,000)</u>
Income From Operations		91,500
Interest Expense		<u>(7,000)</u>
Income Before Taxes		84,500
Income Taxes--40%		<u>(33,800)</u>
Net Income		<u>Rs.50,700</u>

*Selling Expenses:

Advertising Expense		Rs. 4,000
Commissions on Sales		8,000
Sales salaries		<u>10,000</u>
Total Selling Expenses		Rs.22,000

**General and Administrative Expenses:

Depreciation Expense		Rs. 4,000
Insurance Expense		4,000

Repairs and Maintenance Expense
Total General and Administrative

2,000
Rs.10,000

[Deduct 2 Marks for Each mistake. Please deduct marks specifically if selling and general admin expenses are not calculated correctly]

c) (i) The difference between the nominal value of the shares and their selling price is called the “share premium account”. It is not permissible to issue shares at a discount.

The share premium account can also be used for –

- The preliminary expenses of forming a company.
- The expenses and commissions incurred in any issue of shares.
- Any profit or loss on the issue of loan stock.
- Any premium paid on the redemption of loan stock.
- The expenses of issue of loan stock.

(ii) The awkward items in the trial balance are –

(CH 10 – Pg 5 & Pg 6)

- **Depreciation** – when trial balance is presented as a list of credits and debits, the fixed asset at cost is recorded as a debit item and depreciation is recorded as a credit item.
But in balance sheet we show the net of non current assets less depreciation.
Second the depreciation shown in the trial balance is at the beginning of the year whereas what we need to present in the balance sheet is the value of asset less depreciation at the end of the year. This figure is available only after income statement is drawn up, then trial balance need to be redone to produce this figure.
- **Retained earnings reserve** – in trial balance retained earnings reserve shown is for the beginning of the accounting year. If retained earnings reserve for the end of the accounting year is shown then trial balance will have to be redrawn at the end of the year after income statement has been completed.
- **Inventories** – Figure for inventories at the beginning of the accounting year (i.e. opening stock) is included in the trial balance. But opening stock is not used in the end of year balance sheet. The figure for closing balance is noted below the trial balance. This figure is needed for the end of year balance sheet. Both opening and closing stock.
- **Adjustments for the accrual concept** – Income statements record costs when they are incurred (even if the company has yet not paid for them or paid for them in advance). Notes will be made at the bottom of the trial balance to take account of any adjustments necessary.
- **Dividends** – The dividend paid in the trial balance can be for current year or the previous year. If it relates to the previous year then the accrual concept is being overlooked for this item.

[20]

(Total 100 Marks)

*****END*****