

Institute of Actuaries of India

Subject CT2 – Finance & Financial
Reporting

October/November 2007

INDICATIVE SOLUTION

INSTRUCTIONS TO MARKERS

1. MARKS ARE ALLOTTED FOR EACH BIT OF QUESTION IN THE MAIN EXAM PAPER, AS WELL AS IN THE MODEL/INDICATED SOLUTIONS.
2. MARKERS ARE REQUESTED TO ALLOT MARKS AS PER THE SCHEME INDICATED BELOW.

PLEASE USE AN EXCEL SHEET (SOFTCOPY) WHEN MARKER'S SHEET IS FURNISHED TO IOAI—[SO THAT TOTALLING MISTAKES DO NOT TAKE PLACE, AND ALSO FOR FURTHER EVALUATION/RESEARCH OF SCRIPTS AT IOAI'S OFFICE AND REVIEW EXAMINER]

1. C
2. B
3. C
4. B
5. B
6. D
7. B
8. C
9. B
10. A

[2 x 10 = 20]

11. a)

- **Bull Market:** - A period of time during which investors are generally confident and stock market prices increases.
- **Custodian:** - The keeper of security certificates and other assets on behalf of investors.
- **Emerging Markets:** - Stock markets in developing countries such as China, Mexico, and India etc. They offer high expected returns due to rapid industrialization. They are also very risky markets.
- **Future Contract:** - like a forward contract, this is a contract to buy (or sell) an asset on an agreed basis in the future. However, futures contracts are standardized contracts that can be traded on a recognized exchange.

b)

- Recourse factoring only provided early payment of invoices. It is a loan, which is secured against the invoices, and has a value, which automatically fluctuates with the amount that the company sells

WHEREAS

Non-recourse factoring is where the supplier sells on its trade debts to a factor in order to obtain cash payment of the accounts before their actual due date. The factor takes over all responsibility for credit analysis of new accounts, payment collection and credit losses.

- Under partnership firm the owners have unlimited liability. All the partners are jointly liable for any business debts. They will also be “severally liable”, that is, each partner is liable to the full extent of his/her personal estate for the deficiencies of the partnership.

WHEREAS

The owners' liability is limited to the fully paid value of their shares. So that, if shares have been issued 'partly-paid' then, in the event of a liquidation, shareholders will only be liable to pay the outstanding installments. If the shares are 'fully paid', the shareholders have no further liability.

c)

	Partnership	Limited Partnership	Liability	Limited Company
Legal identity	Not separate	Separate		Separate
Documentation	None	- Partnership agreement recommended. - Registration required with a		- Memorandum & Articles of association. - Registration required with a certificate of incorporation.

		certificate of incorporation.	
Disclosure	None	Audited accounts if turnover exceed a specified amount.	All companies must produce audited accounts.
Tax	Partners pay income tax.	Members pay income tax.	Companies pay corporation tax.

[Total: - 8]

12. a) i.) DTAA is an agreement signed between two countries to avoid payment of tax twice in two countries on the same income.

Companies benefit if they have global operations. Tax liability can be reduced through appropriate use of DTAA between countries.

Example: A company based in Mauritius having operations in India can benefit from DTAA between India and

Mauritius. The tax on income earned in India would be deducted from the tax payable in Mauritius.

(example is not mandatory if all relevant points are covered)

ii.) DTAA can be misused by companies for tax evasion. Example: Insurance companies setting up overseas subsidiaries / joint ventures would consider DTAA as a factor affecting their cash flows from the overseas venture and could affect the decision on investing in that country.

b) i.) In the UK, a deduction is made from the capital gain based on the length of ownership, reducing the gain by a percentage called, "taper relief". For individuals, (including sole traders and partners), system of taper relief applies.

ii.) For example, the deduction for personal assets is 5% after 3 years, rising to a maximum of 40%. For business

assets, the deduction is much greater: 50% after 1 year and 75% after two or more years' ownership.

[Total: - 7]

13. a) Advantages of listing: -

- Can raise new capital
- Can raise additional capital in future
- Can provide an exit route for existing shareholders
- Can offer quoted shares as consideration for acquisitions
- Listing would enhance the status of the company and hence its bargaining powers
- It would provide an objective method of valuation of their investments for the owners of the company
- The company can offer employee Stock Option Scheme for its employees
- It would facilitate if the company were to be widely held
- It would enhance the public awareness about the company, which may in turn increase its sales.

b) A manufacturing company would use swaps either to decrease the cost of debt or to manage the risks.

Of course, it might also use it for speculation but that is highly unlikely.

Risk Management

A company, which has short-term liabilities linked to floating interest rates, but long term fixed rate assets, would use

interest rate swap to achieve a more matched position and to reduce the actuarial risk.

Similarly, a company, which has assets in one currency but liabilities in another currency would use currency swap to reduce the currency risk.

Cost of Debt

If a company has a comparative advantage in borrowing at a floating rate (compared to fixed rate) than the company

might be able to combine the swap with floating rate to achieve the same objective of borrowing at a fixed rate but at a lower rate.

Similarly, if a company has a comparative advantage of borrowing in a different currency rather than the required

currency, it might be able to combine the currency swap to lower the total cost of borrowing in the required currency.

Total – [9]

14. a) Generally not. Because you need a sign change (from negative to positive cash flows) for IRR to be estimated.

It is possible that you could still get an operating cash flow that is negative in some year, but the IRR will be huge and meaningless.

b) Beta of DASA = Correlation * (Std Dev of DASA / Std Dev of Mkt)

$$\text{Beta} = 0.66 * (0.7/0.4) = 1.15$$

$$\text{Current Cost of Equity} = 8\% + 1.15 (5.5\%) = 14.33\%$$

$$\text{Current Pre tax cost of Debt} = \text{Risk free rate} + \text{Default Spread} = 8 + 2 = 10\%$$

$$\text{Current after-tax Cost of Debt} = 10\% (1 - 0.4) = 6.00\%$$

$$\text{Weightage of Debt (D/V)} = 20\%$$

$$\text{Weightage of Equity (E/V)} = 80\%$$

$$\text{Current Weighted Average Cost of Capital} = 14.33\% (0.8) + 6.00\% (0.2) = 12.66\%$$

Total – [12]

15. a) **Default Risk** – loan stock capital ranks higher in the event of a wind-up than equity and preference shares. In this respect it can be described as relatively low risk.

Market Risk – Because the income flow is fixed and the security is better than equities, it is generally the case that the market price of debt securities is more stable than that of equity capital. Therefore the market risk is relatively low.

Reinvestment Risk – This is the risk that the income from the investment cannot be reinvested to give the same level of yield as the initial investment. The risk of lower yielding reinvestment is arguably the same for loan capital as for equity.

b) i. **Stock Turnover Ratio** = $\frac{\text{Stocks (inventories)}}{\text{Revenue (turnover)/Cost of sales}} \times 365$

Revenue (turnover)/Cost of sales

Purpose: - This is an attempt to assess how much stock the company holds in relation to the scale of the company's operation. The ratio attempts to show how long stock is held for an average.

ii. **Debtors Turnover Ratio** = $\frac{\text{Debtors (trade receivables)}}{\text{Credit Sales}} \times 365$

Credit Sales

Purpose: - This is a measure of the average length of time taken for debtors (trade receivables) to settle their balance.

iii. **Creditors Turnover Ratio** = $\frac{\text{Average creditors (trade payables)}}{\text{Account purchases}} \times 365$

Account purchases

Purpose: - This ratio indicates the average number of days credit that a company has from its suppliers.

c) i. The cost of sales is underestimated and therefore profit is overstated. If, for example, an item is purchased for Rs 10 and sold for Rs 15 the company will record a profit of Rs 5. If, however, the cost of replacing that item of stock has increased to Rs 12 then the “real” profit on the transaction is only Rs 3.

ii. If depreciation is calculated using the historical cost of the assets, the depreciation charge will be inadequate for replacing the asset at its current value and thus again, profit will be overstated. The cost of sales is underestimated and therefore profit is overstated.

iii. Interest payments will decline in real terms so a company that pays out more interest than it receives will find that its profits will tend to be understated in times of high inflation.

iv. Accounts figures are not comparable between years. Profits and asset values might increase in money terms but it is not clear how much of the increase is a real increase and how much is simply due to inflation.

Total – [5]

16. a) i.) **Balance Sheet Equation:** -

$$\text{Assets} = \text{Liabilities} + \text{Capital}$$

ii.) **Additional entries of Assets:** -

- Assets held to cover insurance liabilities
- Assets representing free reserves
- Reinsures share of technical provision
- Debtors (trade receivables) arising out of direct insurance operations (policyholders, shareholders)
- Prepayments (i.e. amounts paid in advance) and accrued income.

Additional entries of Liabilities: -

- Fund for future appropriation
- Technical Provisions

b) i.) **Goodwill:** - Rs. 10,00,000 Less Rs. 4,85,000 = Rs. 5,15,000ii.) **Minority interest:** - Rs. 4,85,000 x 20% = Rs. 97,000

It appears as a separate item minority interest under equity and reserves of the consolidated balance sheet.

Total – [7]

17. a) Cash flow at time zero is the sum of the installation cost of \$10m. and the change in working capital.

Existing working capital = \$5m. (0.50) = \$2.5m. New working capital requirements are \$8m. (0.25) = \$2m.

Hence there will be a reduction of \$0.5m., and the net cash flow at time zero = \$9.5m.

b)

	Computerized System	Manual System
1. Revenues	8000000	5000000
2. Cost of Goods Sold (COGS) = 50% of revenue	4000000	2500000
3. Operating Expenses	500000	1500000
4. Depreciation = 10% of computer cost	1000000	
5. EBIT = 1-(2+3+4)	2500000	1000000
6. Tax = 40% of EBIT	1000000	400000
7. Earnings after tax (EAT) = EBIT - Tax	1500000	600000
8. Cash Flow = EAT + Depreciation	2500000	600000

Annual Incremental flow from computerized system = 2500000 – 600000 = 1900000 = 1.9 million

The NPV of this project = Present Value of Annual Incremental Cash Flows – Cash Flows today

$$(1.9) * (\text{PVIFA } 10\text{years, } 8\%) - 9.5 = 3.249\text{m.}$$

As NPV is positive, investment should be made

Total – [12]

18. Income Statement for RSM for the year ended 31st December 2006.

		Balance sheet Figures are in Rs'000
Sales		1800.000
Cost of sales:		
raw materials	640.000	
add increase in inventories	27.000	
add depreciation *	475.000	(1142.000)
Gross profit		<u>658.000</u>
Expenses:		
Staff costs	115.000	
Electricity	31.000	
Advertising & delivery costs	42.000	
Provision for doubtful debts **	50.100	(238.100)
Operating Profit		<u>419.900</u>
Finance costs ***		<u>(70.000)</u>
Net Profit before tax		349.900
Tax @ 30%		<u>(104.970)</u>
Profit for the year attributable to equityholders		244.930
Dividend for the year ****		<u>(73.479)</u>
Retained profit for the year		<u>171.451</u>

Notes: -

* We need to find out the new value of the factory after revaluation. This will be 15, 00,000 plus the revaluation reserve of 1,25,000 i.e.16,25,000. As there was still five years of the factory's life to run, we depreciate the factory from its new value over the remaining term. So the depreciation charge for the factory is $20\% \times 16,25,000 = 3,25,000$

The depreciation charge for the machinery will be $1/10 \times 15, 00,000 = 1, 50,000$.

Total depreciation = $1, 50, 00 + 3, 25,000 = 4, 75,000$

** $10\% \times [1, 25, 000 + (18, 00,000 - 14, 24,000)] = 50,100$

*** $0.08 \times 5, 00,000 + 0.10 \times 3, 00,000 = 70,000$

**** 30% x 2, 44,930 = 73,479
statement with notes]

[8 marks for income

Balance Sheet for RSM at 31st December 2006

Fig in Rs'000

ASSETS

Non- current assets

Factory	975.000
Machinery	<u>1200.000</u>
	2175.000

Current assets

Inventories	173.000
Trade receivables	501.000
Provision for bad debts	(50.100)
Cash*	<u>189.000</u>
	812.900

Total Assets

2987.900

EQUITY AND LIABILITIES

Issued ordinary shares of Rs 10	1040.000
Other reserves	
Share premium account	360.000
Revaluation reserve <u>125.000</u>	485.000
Retained earnings	<u>294.451</u>

Total equity

1819.451

Non- current liabilities

8% Convertible loan stock 2015	400.000
10% Debentures 2016	<u>300.000</u>
	700.000

Current liabilities

Trade payables	298.000
Dividends payable	83.479
Tax payable	86.970
	468.449
Total liabilities	<u>1168.449</u>
Total equity and liabilities	<u>2987.900</u>

Notes:-

* Calculated as follows:-

Cash at start :	<u>25,000</u>
Add:-Cash received	14,24,000
Less:- Costs	(8,28,000)
Add:- Increase in trade payables	48,000
Less:- Interest cost	70,000
Less:- Repayment of bank loan	(2,00,000)
Less:- Tax and dividends paid	(2,10,000)

Cash at end of year **1,89,000**

** The number of new shares issued as a result of the conversion was:-

$$100,000 \times 2 / 5 = 4,000$$

As the par value of the shares is Rs 10, the issued share capital needs to increase by Rs 40,000. The share premium account increase by:

$$\text{Rs } (1,00,000 - 40,000) = 60,000.$$

Total – [20]
