INSTITUTE OF ACTUARIES OF INDIA

CT2 – Finance and Financial Reporting

MAY 2009 EXAMINATION

INDICATIVE SOLUTION

General guidelines to markers:

The solutions provided here are indicative ones. Please award appropriate marks for any correct alternative solutions.

Please award marks for correct steps as indicated in the indicative solution even if the final answer does not match exactly.

If data input in a solution is wrong, please do not deduct more than 30% of maximum marks allocated to that part of the question.

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

11. a) **Bearer Document** – A document that proves ownership of a security and where the interest and the redemption proceeds must be claimed by the bearer or holder. There is no register of the owners of the security.
Clean Price – The price of a bond without allowance for accrued interest.
Free Float – That proportion of the equity of a company available for trading by the public on a stock market.
Puttable Bond – A bond where the holder has the right to sell it back to the insurer at certain predetermined times for a predetermined price.

b)
i. The importance of capital budgeting is due to the
- Complexity of the analysis involved.
- Cost of mistaken decisions.

ii. Investments in fixed capital, however often involves complex choices between –
- Alternative capital assets, each with various advantages and disadvantages
- Methods of financing

c) <u>Invoice discounting and Non recourse factoring –</u>
- Invoice discounting –
  - Advantage to supplier – supplier receives a certain proportion of the amount it bills immediately from the factor.
  - Disadvantage to supplier – the supplier still has to provide its own credit administration and collect its debts.
    It bears the credit risk.
    In addition it has to pay interests to the factor, based on the amount of time between the date the advance was made and the date that payment was received from the customer.
- Non – recourse factoring –
  - Advantage to supplier – supplier receives certain proportion of the amount it bills immediately from the factor.
    In addition the factor gives a full administration service and will take on the credit risk associated with the invoices.
  - Disadvantages to supplier – Factor just wants only to get paid as soon as possible, without any interest of maintaining good relationships with the customer.
    It may therefore apply pressure to such an extent that the supplier loses goodwill and subsequently customers.

[8]

12.

a) An indexation allowance is an allowance to remove the inflationary element of any capital gain, such that any increase in nominal asset values due to inflation is exempt from tax.

b) Purchase price of the property in Dec 2007 allowing for indexation = Rs 35, 00, 00 * 152/120= Rs 44, 33,333
Value enhancements as at Dec 2007= Rs5, 00,000 * 152/135= Rs 5, 62,963
Capital gains on sale of first property = Sales prices net of expenses of sale –Indexed purchase price and cost of improvements=
Rs 60, 00,000 – Rs 150,000 - Rs 44, 33,333 - Rs 5, 62,963 = Rs 853,704

Capital gains during the year = Rs 853,704 - Rs10, 00,000 = - Rs 146,296

No capital gains tax is payable by Mr X for 2007

c) Examples of how the Government can structure taxes to encourage or discourage certain kinds of behaviour among individual tax payers include

- Tax relief on pension contributions to encourage saving for retirement
- Tax relief on insurance policies or medical premiums to encourage purchase of insurance
- Tax relief on charitable contributions
- Tax relief on educational loans to encourage further studies
- Higher sales tax / VAT on alcohol/ cigarettes to discourage smoking/ drinking

d) Examples of how the Government can structure taxes to encourage or discourage certain kinds of behaviour among corporates include

- Tax relief on pension contributions for employee savings schemes
- Encourage investments by taxing retained profits less heavily than distributed profits
- Tax relief on expenditure incurred on research and development
- Allow write offs of capital expenditure
- Setting up Special Economic Zones to encourage development of certain areas
- Allow tax relief to charitable organisations/ NGOs

[6]

13. a) Conversion price per equity share= Rs 10,000/ 5= Rs 2,000
Current market price per equity share= Conversion price minus conversion premium = Rs 2,000 - Rs800 = Rs1, 200

b) Convertible loan stock is essentially debt securities with a stock option which can generally be exercised at specific times in the future.

Advantages over ordinary share capital

- Does not lead to dilution of the rights of the existing shareholders or dilution of the Earning per share
- Lower returns are payable due to the security of a fixed return in the short term
- Tax efficient as interest payments are tax deductible

Advantages over ordinary unsecured loan stock

- Investors have the possibility of a long term capital gain if they convert to ordinary shares in the future.
  This additional prospective return means that issuer can offer lower rates of interest on the loan stock as compared to ordinary debt.

c)

The 2 possible asset structures are

- Equity and a European style put option with an expiry date at the end of the period and a strike price equal to the current Sensex level
- Zero coupon bond and a European style call option with an expiry date at the end of the period and a strike price equal to the current Sensex level

d)

A rights issue is used to raise capital from the existing shareholders by offering further shares at a given price to existing shareholders in proportion to their existing holdings.

Scrip issue is where the company gives free shares to all ordinary shareholders in proportion to their existing holdings.

A rights issue increases the assets of a company due to cash inflow.
It increases both the share capital and reserves of a company.

A scrip issue leaves the fundamental value of a company unchanged. It increases the share capital and reduces the reserves while keeping the total liabilities unchanged.

[10]

14.

a) Beta is a measure of the systematic risk associated with a particular stock, and determines the cost of equity for the company. A value of beta greater than 1 indicates that the stock has historically outperformed the market.

b) Risk free rate return= 6%
Equity risk premium = 14%-6%= 8%

WACC prior to issue of debt = risk free rate + beta * equity risk premium
= 6% + 1.2 * 8%= 15.6%

After issue of debt

Geared beta = Ungeared beta *(1+ gearing * (1-tax rate)
= 1.2 * (1+1*(1-30%)) = 2.04

Cost of equity = 6% + 2.04 * 8%= 22.32%

WACC = (cost of equity * equity capital + net cost of debt * debt capital)/ total capital
= ((22.32% * 50,000,000+ 7 %*(1-30%) *25,000,000 +
8 %*(1-30%) *25,000,000))/100,000,000
= 13.785%

c) The 2 main uses of WACC are

- Determining the optimal capital structure of the company (financing decision)

- Determining the cost of capital to be used for capital project appraisal, expansions and mergers (the investment decision)

[5]

15.

- NAV Per share – (1,40,000 – 40,000) / 160,000 = 0.625 paisa
- Current ratio – 2,32,000 / 82,000 = 2.8 times
- Quick ratio – (2,32,000 – 84,000) / 82,000 = 1.8 times
- Stock turnover ratio – (84,000 / 5,00,000) x 365 = 61 days
- Profit margin – 70,000 / 5,00,000 = 14%
- Return on capital employed – 70,000 / 3,40,000 = 20.6%
- Debtors turnover ratio – (1,20,000 / 5,00,000) x 365 = 88 days
- Creditors turnover ratio – (64,000 / 1,90,000) x 365 = 123 days

Current ratio –

- Gives an estimate of the company's liquidity, it compares money due to be received soon with money due to be paid soon.
- The figure 2.8 indicates that ABC pvt ltd is able to cover its short term debt.

Quick ratio –

- Also gives a measure of liquidity, it uses cash or near cash items in the balance sheet.

- A ratio of 1.8 indicates that the company is solvent.

Stock turnover ratio –

- It shows how quickly the company is selling its output.
- The figure indicates that the company is turning over its stock every 61 days i.e. approximately every two months.

Return on capital employed –

- It represents how efficiently company's capital is being used to make profits.
- ROCE of 20.6% would seem to cover the cost of capital.

Debtor's turnover ratio –

- It indicates the number of day's credit that is extended to customers who request payment on credit.
- The ratio of 88 days is on the higher side, indicating that the company is not operating its credit control functions effectively.

Creditor's turnover ratio –

- Creditor's turnover ratio is quite high at 123 days.
- The company has been able to negotiate good terms from its suppliers.

[5]

16.

a)

- The qualified report indicates that the auditors have expressed some observation about the truth and fairness of the financial statements.

- The most common reason for a qualified report would be that the auditor disagrees to a material extent with the information in the statements.

- The significance of such an audit report depends on the reaction of readers. In principle, they must decide whether to rely on the figures provided by the directors or the auditor.

- The fact that the auditors have disagreed with the directors so publicly might undermine investor's confidence in the integrity of board and so the share price might fall.

b)

Operating Profit	=	25, 00,000
Depreciation	=	5, 00,000
Increase in inventories	=	- 28,000
Increase in Trade and other receivables	=	- 30,000
Decrease in Trade and other payables	=	- 75,000
Cash generated from operating activities	=	28, 67,000

[6]

17.

a) The company is in a high risk and high growth industry. It will make losses in the first few years of operations and require high initial capital investments. It will start making profits only when it hits upon substantial oil reserves. Hence it would be inappropriate to issue debt given the high risk associated with the company.

- It does not have a steady income flow and will have insufficient income cover to service the debt.
- It has few tangible assets to pledge as collateral for debt.
- Credit rating agencies will give it a very poor credit rating given the associated high risks, and it will be able to raise debt only at very high interest rates.

Issuing equity is a better means of raising capital for such a company. It will attract investors who are willing to invest in such a high risk venture in the hope of large upside potential.

Such investors will be looking for capital growth rather than steady dividend flows.

b) The risk matrix for Company X is given below.

- exploration rights negotiations – 2 marks, - ½ mark per risk for any of the below risks
- construction of drilling sites for testing and exploration – 2.5 marks, - ½ mark per risk for any of the below risks
- selling off identified oil resources- 1.5 marks , - ½ mark per risk for any of the below risks

Risk/ Stage	Exploration rights negotiations	Construction of drilling sites for testing and exploration	Selling off identified oil resources
Political	Political instability could lead to significant delays in the permit granting process. The government may give preference to local firms and be wary of international companies.	Regional conflicts or domestic instability could delay the exploration process.	Possible change in political regime may render the contract invalid. The new government may turn hostile esp if large oil reserves are discovered and look to nationalise the oil findings.

Natural/ Environmental	Environmentalists may raise concerns about whether aquatic life will get adversely impacted	Bad weather and typhoons could damage the production infrastructure or lead to project delays. Operational procedures may lead to environmental hazards	Environmental concerns relating to leakage and spills involved in harnessing oil will have to be addressed
Project	Project feasibility study will need to be carried out based on the cost of obtaining permits for drilling	Difficulties in construction of drilling sites and oil wells may be greater than expected. Local skilled labour may not be available to provide assistance. Safety standards may not be met resulting in on site accidents. There is risk of equipment or technology malfunctions.	
Financial	The government may quote very high prices for awarding the off shore drilling rights, or engage in a bidding process among competing firms.	There is risk of exceeding the exploratory budget. This could lead to possible withholding of funds until concerns of financiers are met.	Risk that no/ insubstantial oil reserves are found such that the project is loss making. This will affect the company's ability to raise finances in the future as well.
Economic	Fluctuations in local currency may affect the negotiated price for purchase of drilling rights.	Any change in global or local economic conditions, inflation, interest rates could impact the project costs and costs of leasing any additional equipment.	Unpredictable and large changes in world oil prices or change in demand and supply of oil could lead to lower than expected returns of investment.

Q17c

Cost of the project = $40m

Figures in $ millions

	Probability if oil is found	Probability of below scenarios	Oil price $70	Oil price $100	Oil price $40
i)Nothing	-	0.5			
ii) small find	0.6	0.3	150	450	30
iii) big find	0.25	0.125	250	750	50
iv) jackpot find	0.15	0.075	1000	3000	200
Expected Returns	1	1	151.25	453.75	30.25

The expected return on the project = 1/3*151.25 + 1/3*453.75 +1/3*30.25
= $211.75m

The net profit = 211.75 m –40 m= $171.75 m

If additional testing is carried out

Cost of the project = $50m

Figures in $ millions	Probability	Probability if oil is found	Oil price $70	Oil price $100	Oil price $40
i)Nothing	0.400	-			
ii) small find	0.360	0.6	150	450	30
iii) big find	0.150	0.25	250	750	50
iv) jackpot find	0.090	0.15	1000	3000	200
Returns	1.000	1.000	181.50	544.50	36.30

The expected return on the project = 1/3*181.5 + 1/3*544.5 +1/3*36.30
= $254.1m

The net profit 254.1m – 50m= $204.1 m

Since the expected net profit increases after carrying out the additional testing, it is recommended that the additional testing be undertaken.

Q17d

Advantages of NPV method

- The NPV method is a discounted cashflow approach to project evaluation. It is a direct measure of the expected increase in the value of a firm
- Average NPV across a range of scenarios can be found by summing the value multiplied by the probability.

Disadvantages of NPV method

- Difficult to determine a suitable discount rate to use
- A high discount rate gives very little weightage to cashflows that happen later on in the life of the project.

Advantages of using IRR

- The IRR is the interest rate that gives the project a zero NPV. It highlights the return achieved by a project and is intuitively easier to understand for non-experts.

Disadvantages of using IRR

- Can have multiple or no solutions if there are net negative cashflows at certain points
- Ignores the scale of a project
- Ignores the timing of receipt of future positive cashflows

[20]

18. a) There is little point in providing information which is so detailed as to be unintelligible. The statements can, therefore, be made clearer by showing totals instead of listing every item.

b)

Sales	2, 70,000	
Less: Sales Return	6,000	2, 64,000
Closing stock		24,000
		2, 88,000
Less:		
Opening Stock		20,000
Purchases	80,000	
Less: Purchase return	4,000	76,000
Carriage Inward		3,600
Wages plus wages outstanding	(42,000 + 3,000)	45,000
Factory Lighting		1,400
Gross Profit		1, 42,000
Add: Discount		5,200
		1, 47,200
Less:		
Carriage outwards		800
Salaries plus o/s salaries	(27,500 + 2,500)	30,000
Travelling expenses		3,700
Rent & taxes		7,200
General expenses		10,500
Insurance less prepaid insurance	(1,500 – 300)	1,200
Depreciation – Plant and machinery plus furniture	(4,500 + 1,600)	6,100
Net Profit		87,700

Balance Sheet –

Assets –

Cash in Hand	24,300
Bills receivable	2,500
Sundry debtors	52,000
Closing stock	24,000

Prepaid insurance		300
Furniture Less Depreciation	(8,000 – 1,600)	6,400
Plant & Machinery (90,000 – 4,500)		85,500
		1, 95,000
Liabilities –		
Bills payable		1,800
Sundry creditors		25,000
O/s wages		3,000
O/s salaries		2,500
Share capital	75,000	
Add: Profit	87,700	1, 62,700
		1, 95,000

[20]

[Total 100 Marks]

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