Institute of Actuaries of India

Subject CB1-Business Finance

July 2022 Examination

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.

Solution 1: D **[2 Marks]**

Solution 2: B **[2 Marks]**

Solution 3: C **[2 Marks]**

Solution 4: D **[2 Marks]**

Solution 5: B **[2 Marks]**

Solution 6: A **[2 Marks]**

Solution 7: B **[2 Marks]**

Solution 8: C **[2 Marks]**

Solution 9: A **[2 Marks]**

Solution 10: C **[2 Marks]**

Solution 11:

i) Short position on soybean futures. Since the objective is to lock the prices and prevent fluctuations, and since the farmer is already having a long exposure to soybean, the short position will freeze prices at near the current market levels. [1]

ii)

a. An interest rate swap with A borrowing fixed at 7% and B borrowing floating at MIBOR+0.5%. [1 mark]
b. Even though B has an absolute advantage in borrowing, the relative differences in rates allows for scope of reducing interest rate for both parties. [0.5 marks]
c. Assuming no intermediate party brokering the transaction, A can borrow at fixed 7% and lend to B at 6.5%. B can borrow floating at M+.5% and lend to A at M+1%. [1 mark]
d. Both A & B benefit 0.5% by entering into this swap. [0.5 marks]

[3]

iii) Sell an at or out of the money call option with a short term timeframe. This will allow the trader to earn short term cash flow via call option premium while benefiting long term from growth in stock price, since he does not sell his long exposure on the stock. [1]

[5 Marks]

Solution 12:

i) The auditor's report must state whether or not, in the opinion of the auditors, the accounts have been properly prepared and give a true and fair view of the state of the company's affairs. [1]

ii) Qualified opinion: except some immaterial donations made to ABC NGO

Emphasis of matter paragraphs: like to draw attention to para 6 of my report where details around change in valuation methods of assets has been highlighted

Disclaimer of opinion: except that related to payments made to the director Mr. X
Adverse opinion: the treatment of commissions paid to intermediaries are not in in conformity with the accounting principles that are generally accepted in India

[4]

[5 Marks]

Solution 13:

i) Equity Beta = corelation(x,m)*stdev(x)/stdev(m) = .4*sqrt(300/200) = .489 [1]

ii) Cost of equity = Rf + Beta(E)*(Rm-Rf) = 5% + .489*(8%-5%) = 6.469% [1]

iii) Net cost of debt = Gross cost of debt***(1-t) = 5%**(1-.3) = 3.5% [1]

iv) WACC = (cost of equity*proportion of equity + net cost of debt*proportion of debt)
= (6.469%)*(1/3) + (3.5%)*(2/3)
= 4.489% [1]

v) Bg = Bu * [1 + D/E * (1-t)]
.489 = Bu*[1+(2/1)*(1-.3)]
Bu = .489/2.4 = .20375 [1]

vi) Bg = Bu * [1 + D/E * (1-t)]
Bg = .20375 * [1 + (4/1)* (.7)] = .77425
WACC = 5% + .77425*(8%-5%) = 7.323% [2]

vii)

a. Model error: Incorrect structuring & selection of the variables in the model
b. Parameter error: Incorrect parameters used for each variable simulation
c. Assessment error: Inappropriate assessment of probability distribution of inputs

[1 mark for each valid point, total 3 marks]

[10 Marks]

Solution 14:

i) Equity Shares, Preference shares [1]

ii) Share premium account is a fund of amount raised above the nominal value of shares issued [1]

iii) Share premium account is a part of Company's share capital [1]

iv)

a. to account for preliminary expenses of forming a company
b. to account for expenses and commissions incurred in any issue of shares
c. any profit or loss on the issue of loan stock
d. any premium paid on the redemption of loan stock
e. the expense of issue of loan stock

[0.5 marks per valid answer, Max 2 marks]

[5 Marks]

Solution 15:

i)

a. Avoiding the risk
b. Reducing the probability or severity of occurance
c. Reducing uncertainity by conducting further feasibility study
d. Transfering the risk by engaging a sub contractor
e. Insuring the risk
f. Sharing with another party

[0.5 marks for each point, max 2.5 marks]

ii)

a. Likely effect on frequency, consequence and expected value
b. Feasibility & cost of implementing the option
c. Any secondary risk resulting from the option
d. Further mitigation options to respond to secondary risk
e. Overall impact of each option on distribution of NPVs

[0.5 marks for each point, max 2.5 marks]
[5 Marks]

Solution 16: Trial Balance for the Company is as below:

Account head	Debit	Credit
Revenue		100,000
Building depreciation	5,000	
Director's remuneration	10,000	
Shareholder reserve		50,000
Administrative expenses	1,000	
Wages	2,000	
Purchases	50,000	
Investment income		5,000
Trade Receivables	5,000	
Marketing expenses	1,000	

[0.5 per correct attribution, **total 5 Marks**]

Solution 17: Some limitations of accounts may be as below:

- Historical cost accounting
    i. Time lag between purchase and sale means firms underestimate their cost of sales
    ii. Depreciation charges calculated using historical cost tend to overstate profits
    iii. For a company that pays more interest than it receives, profit will be under stated in times of high inflation
- Subjectivity
    i. Various methods of valuation of inventory
    ii. Choice of method of depreciation
    iii. Revaluation or not of non-current assets
- Appropriateness of figures
    i. Going concern or wind up basis
    ii. Receivables and payables at face values or present value
    iii. Some items may be estimates like bad debts or provisions
- Comparison between firms
    i. Creative accounting
    ii. Different levels of details
    iii. Various accounting formats
- Ratio analysis
    i. May divert attention from absolute amounts
    ii. Affected by internal and external policies
    iii. Interpretation may be ambiguous
- Accuracy of figures
    i. Time delay to publishing may make it obsolete
    ii. Window dressing techniques

[5 Marks]

Solution 18:

i)

a) Suitable. Long term source of financing & can enhance the capital base of the company. Terms can further be negotiated as participating to reduce risk further.
b) Not suitable. Interest rates in peer to peer lending are usually higher and this source is preferred by entities with no real credit rating.

c) Suitable. Subordinated debt are long term in nature and ranks below secured debt and can at times enhance the capital base of the company. The company's credit rating puts it at an advantage to negotiate an attractive interest rate.
d) Suitable only if the capital expansion can be entirely isolated as a separate project, independent of its normal operations. This will be more expensive than secured debt otherwise due to overcapitalization requirement in the equity portion.
e) Suitable only for rewards based crowd-funding, where the company intends to reward the participants. The large capital requirement also puts further constraints on viability of this option.

[5]

ii)

a) In offer for sale, a pre determined number of shares is offered to the public at a fixed price or in a range of prices via an issuing house. Rather than selling the share directly to public, the shares are first offered to issuing house which then acts as an underwriter to sell the share to the public.
b) In offer for sale by subscription, the company sells shares directly to the public without going through the process of underwriting.
c) Since the company requires a stable scenario for raising of capital, it is better to go via an issuing house & underwrite the issue.
d) Offer for sale is a better option for the company.

[Max 3]

iii)

a) Contractual theory views a firm as a network of contracts, actual and implicit, which specify the roles of various participants in the organization and define their rights, obligations and payoffs under various scenarios.
b) The managers of the company are trying to substantially alter the riskiness of the company with a view of benefiting the shareholders greatly
c) However, risky investments that fail will reduce the security of debt holders and reduce debt values.
d) The company should have either been explicit to existing debt holders that investment policies will be changed and/or must have paid interest rates high enough to compensate against the possibility of such adverse policy changes.
e) Otherwise it would be considered an implicit breach of understanding and could cause unrest with the existing debtholders.
f) Contracts drawn up must take into account the various conditions that could face the firm and the reaction of the firm to those conditions. In this way, the stakeholders will be aware, as far as possible, of the risks they are taking.

[1 mark for each valid point, **max 4 marks**]

iv)

a)
NPV Calculation:

Year	Revenue	Capital Cost	Running Cost	Certainity Equivalent	Total Cashflow	Eff. CF	PV of Eff. CF
0	0	100	0	1	-100	-100	-100.00
1	80	0	40	0.9	40	36	32.73
2	90	0	40	0.8	50	40	33.06
3	120	0	40	0.7	80	56	42.07
						NPV	7.86

[3]

b)

Year	Revenue	Capital Cost	Running Cost	Capital + Running Cost	PV of Revenue	PV Capital + Running Cost
0	0	100	0	100	0.00	100.00
1	80	0	40	40	72.73	36.36
2	90	0	40	40	74.38	33.06
3	120	0	40	40	90.16	30.05

Total	237.27	199.47

Receipts/Cost Ratio = NPV of Gross Revenue / NPV of Capital & Running Costs

= 237.27/199.47
= 1.189

[3]

v) Hurdle rate is not a risk adjusted measure. Hence, it could result in:

a. Choosing extremely high risk projects that give high expected return, at the cost of losing out on low risk projects below the hurdle rate that could maximize shareholder value
b. Projects presented by over ambitious project managers who dearly want their projects to get the go ahead by underestimating risk and over estimating returns

[1 mark for each valid point, Max 2 marks]

[20 Marks]

Solution 19:

i)

Accounting entry	**Impact on P&L**
TV commercial fees of Famous Cricketer	Negative
Salary of the accountant	Negative
Sale of Bitcoin purchased by the Company last year	Positive if profit, Negative if loss on sale
Decrease in value of owned office space	No impact on P&L
Interest on loan you took from the Company in personal capacity	Positive
Profit sharing agreement with a client who made loss by using your services	Negative based on conditions of agreement
Deferred tax liability generated by making higher tax during the year	Positive
Shares awarded to Company employees as perks, which will vest in 2 years	No impact on P&L
Service fees from a regular client against services provided in last financial year	No impact on current P&L
Valuation of the Company received when participated in recent season of Shark Tank	No impact on current P&L

[0.5 mark per correct answer, total 5 marks]

ii) P&L account (use for working of Balance sheet only):

PAT (a)	10,000,000
Dividend (b)	=-0.25% * 1 crore = (6,250,000)
Retained Earnings (a-b)	3,750,000

Balance sheet

Liability side

Capital	1,250,000,000
Debt	500,000,000
Total	1,753,810,000

Asset side

Computers	2,500,000
less Depreciation	(1,250,000)
Cash & Bank Balance	1,501,445,000
Investment	500,000

Goodwill	250,000,000
Advance rent	600,000
Bad debts	15,000
Total	1,753,810,000

[15]
[20 Marks]

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