INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

08th May 2015

Subject CT2 – Finance and Financial Reporting

Time allowed: Three Hours (10.30 – 13.30 Hrs.)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. ***Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception.***

2. ***Mark allocations are shown in brackets.***

3. ***Attempt all questions, beginning your answer to each question on a separate sheet. <u>However, answers to objective type questions could be written on the same sheet</u>.***

4. ***Please check if you have received complete Question Paper and no page is missing. If so, kindly get new set of Question Paper from the Invigilator.***

AT THE END OF THE EXAMINATION
Please return your answer book and this question paper to the supervisor separately.

Q. 1) Which of the following is not a requirement of the role of financial manager?

A) Structure and restructure the capital of the company to cope with, and to benefit from, the changes in the industry and the changing requirements of the owners.
B) Invest the capital in sectors/ industries to diversify the business risk.
C) Have the strategic vision that will steer the company in the future into profitable and growing markets.
D) Keep the shareholders informed of the company's progress.
E) Manage the income payments from the company to the shareholders and bondholders in a way that is efficient from the company's viewpoint and, within this framework, maximises the wealth of shareholders. **[2]**

Q. 2) Which of the following statements about Commercial paper is correct?

A) It is a form of long-term borrowing used by large companies.
B) Commercial papers are a form of bearer documents for large denominations issued in "single name".
C) The commercial papers are issued at par and redeemed with interest.
D) Commercial papers are listed on the Stock Exchange and therefore bought and sold quite easily.
E) All listed and unlisted companies can issue commercial paper. **[2]**

Q. 3) Which of the following statements about quantitative easing is correct?

A) It is a fiscal policy.
B) It is used by some banks to increase the supply of money.
C) It usually involves both a direct increase in the money supply and a knock-on effect from the fractional reserve system.
D) It decreases the money supply further, although it can involve just making changes to the fractional reserve system **[2]**

Q. 4) A 5 year road project requires an initial cash outlay of 100 Cr and is expected to generate cash inflows of 30 Cr in each of the following three years and 25 Cr in each of the next two years. However it is understood that cash flows in year 4 & 5 were overestimated and would probably be only 5 Cr. What effect would this have on calculations of payback period (undiscounted), internal rate of return (IRR) and net present value (NPV), calculated using the IRR,?

	Payback period	IRR	NPV
A)	Unchanged	Decrease	Unchanged
B)	Unchanged	Increase	Decrease
C)	Increase	Decrease	Unchanged
D)	Increase	Increase	Decrease

[2]

Q. 5) In the case of a company's liquidation, what should be the order in which the following liabilities are repaid?

I. Convertible preference shares
II. Mortgage debentures
III. Warrants
IV. Unsecured loan stock

A) II, I, III, IV
B) II, III, IV, I
C) II, IV, I
D) I, III, II, IV **[2]**

Q. 6) Which of the following can never be a liability to the trader of derivative instruments?

I. Buying a bond future
II. Selling an interest rate swap
III. Buying a put option on the shares of Harbhajan Ltd
IV. Selling a forward on crude oil

A) III only
B) None of the above i.e. in all cases a liability could arise
C) I and III
D) II, III, IV **[2]**

Q. 7) Which of the following methods of obtaining a quotation does not result in a change in the holding pattern of equity capital of a company?

A) Placings
B) Introduction
C) Offer for subscription
D) None of the above **[2]**

Q. 8) Which of the following always requires underwriting?
I. Scrip Issue
II. Offer for Subscription
III. Placing
IV. Rights Issue

A) III only
B) II and III
C) All of the above
D) II, III, IV **[2]**

Q. 9) Shamitabh Ltd purchased a non-current asset for INR 1250 million. It had a useful life of 5 years at the end of which its estimated residual value was INR 259 million. The company decided to charge depreciation using the reducing balance method. The total depreciation (rounded to the nearest million) charged by the company up to the end of the third year is:

A) INR 764 million
B) INR 486 million
C) INR 180 million
D) INR 595 million **[2]**

Q. 10) Which words are most appropriate to complete the following sentences?

The controversy over the existence of an optimal capital structure is debated between those _____ who believe a traditional approach exists and those _____, who do not believe one exists. In the ______ approach to capital structure, the optimal capital structure occurs where the _____ is minimized.

A) supporters of Modigliani and Miller; traditionalists; Modigliani and Miller; degree of financial leverage.
B) traditionalists; supporters of Modigliani and Miller; traditional; cost of capital
C) supporters of Modigliani and Miller; traditionalists; Modigliani and Miller; cost of capital
D) traditionalists; supporters of Modigliani and Miller; traditional; degree of financial leverage **[2]**

Q. 11) Rahul Ltd had incurred heavy losses during the last two years. The balance of reserves and retained earnings was however sufficient to pay a small amount of dividend. The company needs to replace its old and ailing assets at significant costs to improve efficiency and start making profits. Given its strong asset base and the reputation of its promoters, borrowers are willing to offer the necessary loans to fund the new assets. The share prices have fallen significantly in recent times.

i) List the factors that should be considered by the company to determine whether to continue to offer small dividends in order to boost the share price. (3)

ii) Suggest one suitable alternative way of rewarding shareholders and briefly explain its benefits to the company. (2)
[5]

Q. 12) **i)** "Industry and government should co-operate in establishing rules for corporate behaviour, so that firms strive to maximise shareholder wealth within external constraints".

Explain why rules need to be established for corporate behaviour. (4)

ii) Describe the salient features of bills of exchange. (3)
[7]

Q. 13) **i)** Describe the main role of central banks and discuss their influence on the economy. (3)

ii) "Levels of Net Asset Values (NAVs) of comparable mutual fund schemes have no relevance to the future performance of the funds, hence investors should look at other features of the funds".

Comment on this statement, and identify some key features for comparison of two mutual funds. (3)
[6]

Q. 14) **i)** A company has debt to equity ratio of 1:1, the gross redemption yield on debt is 8% and the dividend yield is 4%.

Explain why an investor might buy shares in this company, and suggest a suitable cost of capital for the investor, assuming the debt is held till maturity. (3)

ii) Explain the traditional view of the effect of gearing on the cost of capital, including why the cost of equity increases with an increase in gearing. You should include an appropriate diagram to illustrate your answer. (3)

iii) Identify Modigliani and Miller's first irrelevance proposition, and describe its underlying assumptions. (2)

iv) Draw a diagram showing the effect of gearing on the cost of capital using Modigliani and Miller's first proposition. (2)

v) Beta is a measure of the risk of investing in a security.

a) If the risk-free rate of return is 6% and the equity risk premium is 5%, what is the cost of equity for a company with Beta (ungeared) of 1.4? (1)

b) The total market capitalisation of a company is 100m, whose debt has a book value of 40% and a market value of 50%. The tax rate is 30%. Determine the geared beta of the company. (1)

c) Determine the cost of equity of the company (1)

[13]

Q. 15) A project for water supply is envisaged in the city of Actuaria. Construction costs totalled INR (Actuaria happen to use INR as their currency) 5 million to be paid back over 8 years starting one year after the start of the project, with the majority of the payments backloaded. The Interest rate on the loan is 15%. The project team used sophisticated mathematical tools for statistical analysis of hundreds of projects across the country and arrived at the following equations for various cashflows (in terms of time (t)) for the project.

- Plant Operating cost is INR 1 million increasing at 10% annually and is given by:
  $Opec_t$=Base_Opec*(1+Inflation)^t, where Base_Opec=1.0m and Inflation=10%
- The augmented Capacity of the project increases by 1 million barrel every year and is given by:
  $Capacity_t$ (in million barrel) = Base Capacity*t where Base Capacity=1million barrels per year
- Water distribution in year t after reduced by pipeline lossess is given by :
  $Distribution_t$ (in million barrel) = $Capacity_t$*(1-Losses) where Losses = 15%
- Tariff per barrel is INR 1 per barrel plus increasing by INR 0.5 every year.
  Tarrifft (per barrel) = Base Tarriff +B*t , where Base Tarriff =1 and B=0.5
- Distribution cost is a fixed cost of INR 2 Million plus variable cost of 30% of revenues and is given by
  Dist_cost = Fixed Cost + Variable Cost* Revenue where Fixed cost = 2 mn and variable cost =30%
- After 8 years the project will be donated to a local body without any encumbrance and no exchange of money will take place at that time.
- For simplicity, assume all cashflows occur at the end of the year.

Hint : EMI is given by P×r×(1 + r)^n/((1 + r)^n - 1)

i) Calculate the EMI of the loan. (1)

ii) Identify what is a suitable cost of capital for this project out of 15%, 18% or 12%, giving justification for your answer. (2)

iii) Project the cashflows in tabular form and calculate the net cashflow of the project for each of the 8 years. (6)

iv) Calculate the NPV of the cashflows at the cost of capital (in ii). (1)

v) Calculate the NPV of the project at different interest rates. (5 points are enough within 5% to 50%) . (2)

vi) Draw a graph of the NPV versus discount rate values calculated in part (v). (2)

vii) Calculate the IRR of the cashflows. (2)

[16]

Q. 16) Ranveer Ltd, Mumbai has provided you with the following information for the financial year ended on 31st March 2015.

Cashflow statement for the financial year ended on 31st March 2015

	Amounts in INR million
Cashflows from operating activities	
Cash generated from operations (details given below in the cashflow statement)	2,760
Interest paid @12% p.a. on long term debt (simple interest)	(285)
Net Cash generated from operating activities	**2475**
Cashflows from investing activities	
Purchase of machinery on 01st October 2014	(1500)
Proceeds from sale of office equipment on 31st March 2015 at its then depreciated value	25
Purchase of motor vehicle on 01st April 2014	(200)
Investment made in shares of other listed companies	(125)
Net cash used in investing activities	**(1,800)**
Cashflows from financing activities	
Proceeds from issue of equity shares of the company (Issue price INR 162 per share Face value INR 100 per share)	810
Repayment of long term debt on 30th September 2014	(1,250)
Dividend paid to company's preference shareholders @12% p.a.	(60)
Net cash used in financing activities	**(500)**
Net increase in cash and cash equivalents	**175**
Cash and cash equivalents at beginning of the year	100
Cash and cash equivalents at end of the year	**275**

Cashflows from operations

	Amounts in INR million	
Operating Profit		1,285
Adjustments for -		
a) Depreciation charged linearly for the period of usage		1,175
i) Land and factory building @ 5% p.a.	125	
ii) Plant and machinery @ 20% p.a.	950	
iii) Office equipment @10% p.a.	50	
iv) Motor vehicles @ 25% p.a.	50	
b) Prepaid administrative expenses as at 31st March 2015		(50)
c) Wages paid in advance as at 31st March 2014 pertaining to financial year 2014-15		150
d) Administrative expenses for the year ended 31st March 2014 paid in the financial year 2014-15		(100)
e) Salary outstanding as at 31st March 2015		250
f) Change in working capital		50
i) Inventory	150	
ii) Trade receivables	400	
iii) Trade payables	(500)	
Cash generated from operations		**2,760**

The following additional information was provided to you

a) Ratios calculated using the figures in financial statements as of 31st March 2015

Particulars	**Value**
Gross profit margin	30%
Earnings per share based on earnings attributable to equity shareholders	INR 62.6667
Capital gearing ratio (See point c below)	0.2258
Asset utilisation ratio	2
Trade receivables turnover period	20.075 days
Quick ratio	1.14
Current ratio	1.62
Trade payables turnover period	36.5 days

b)

Actual cash outflows during the year ended on 31st March 2015	**Amounts in INR million**
i) Administrative expenses	1,550
ii) Wages	1,350
iii) Salaries to administrative staff	1,750
iv) Sales and Distribution expenses	1,215

c) The capital gearing ratio has been calculated as follows
i) Preference share capital has been excluded.
ii) Only equity has been considered in the denominator.

d) The fresh issue of equity shares was completed on 1st April 2014.

e) All the sales made during the year were on credit. No cash sales were made.

f) Of the total purchases made during the year, cash purchases were INR 1275 million.

g) Figures should be rounded to the nearest whole number.

h) The company is not liable to pay any corporate tax on its profits.

You have been requested to prepare a

i) Statement of comprehensive income for the financial year ended on 31st March 2015 (12)

ii) Statement of financial position as at 31st March 2015 (12)

[24]

Q. 17) Ms. Deepika sold her house to Mr. Vijay on 1st April 2014 and made a taxable capital gain of INR 4,500,000. She is considering the following two alternatives:

Alternative 1: Pay capital gains tax @ 20% and invest the proceeds in the equity shares of Ranveer Pvt. Ltd at a price of INR 120 per share (The nominal value of the shares is INR 100). Ranveer Pvt. Ltd is likely to pay an annual dividend @ 12% on the last day of each financial year. After 3 years the shares of Ranveer Pvt. Ltd are expected to have a value of at least INR 150 per share.

Alternative 2: Invest the entire capital gain in a 6% capital gains bond for 3 years. Interest on the bonds is paid half-yearly i.e 3% interest paid on 30th September and 31st March. At the end of the third year, Ms Deepika would receive 105% of the amount invested. The additional 5% received is in addition to the interest received at that time. Ms Deepika will be liable to pay income tax on the interest.

Notes:

1) Dividend income is tax free.
2) Capital gains on the sale of the equity shares or on maturity of the capital gains bonds after one year from their purchase is not liable to any tax.
3) Capital gains tax is payable immediately but income tax is payable on the last day of the financial year i.e. 31st March.
4) Ms. Deepika's current income and the prevailing tax slabs would mean that she would have to pay tax on the interest at 10%.
5) Ms Deepika has suggested that the alternatives should be evaluated using a hurdle rate of 8% p.a.

You have asked to calculate the present value of the two investments and advise Ms Deepika on the most profitable alternative. **[9]**

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