INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

29th May 2013

Subject ST5 - Finance and Investment A

Time allowed: Three hours (14.45* – 18.00 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. **** You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.***

3. ***You must not start writing your answers in the answer sheet until instructed to do so by the supervisor***

4. ***The answers are not expected to be any country or jurisdiction specific. However, if Examples/illustrations are required for any answer, the country or jurisdiction from which they are drawn should be mentioned.***

5. ***Attempt all questions, beginning your answer to each question on a separate sheet.***

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

7. ***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) **i)** What is a warrant? What are the possible circumstances in which a company might issue warrants? (3)

ii) Describe the key differences between a call option and a warrant? (4)

iii) CFDH Ltd. – A renowned housing finance company had issued warrants to investors. The warrants have the strike price of 600 and are listed on National Stock Exchange. The expiry date is 23rd Aug 2012. To exercise the warrant, the holder needs to fill an application form and send it to CFDH Ltd. along with a Demand Draft for Rs. 600/warrant and CFDH will issue one share for every warrant. The whole process will take about 15 days. On 20th of July 2012, a hedge fund manager analyses the price of the warrants and the stock over last few trading days. The following table gives the price of the warrant and the underlying stock.

Date	**Warrant Price**	**Stock Price**
19-Jul-12	81.66	693.55
18-Jul-12	74.98	686.75
17-Jul-12	72.53	681.60
16-Jul-12	70.66	678.60
13-Jul-12	68.27	674.95
12-Jul-12	67.99	674.45
11-Jul-12	69.90	678.30
10-Jul-12	71.48	682.55
09-Jul-12	68.79	675.45
06-Jul-12	75.82	683.65

At first glance the hedge fund manager believes that there is an arbitrage opportunity here. Explain why?

Besides CFDH stock being liquid, fairly liquid futures and options on CFDH underlying stock are also available, How can an arbitrage trade be structured to take advantage of this? *The lot size for warrant is 1850 and that of futures and options is 500*. (5)

iv) What are the other important factors that he needs to consider in structuring the trade? (8)

[20]

Q. 2) **i)** With India's growth slowing down the finance minister recently requested the Reserve Bank of India (RBI), the Central Bank, to facilitate a reduction in interest rates. How might reduced interest rates lead to economic growth? (4)

ii) The RBI governor mentioned that prior to cutting interest rates the current account deficit and inflation should be lower. How might a cut in interest rate affect the current account deficit and inflation? (5)

iii) A main reason for the worsening current account deficit of India is attributed to the huge increase in gold purchases by Indians. The government is considering methods that can be adopted to cut gold demand. How does the demand for gold affect the current account deficit and why do you think the government wants to curb demand? (2)

iv) One option that is being considered by the government is issuing "gold linked notes" that are not backed by imported gold but linked to the price of gold. What are the main advantages and disadvantages of this note to the buyer of the note? (3)

v) One more suggestion that has come up is to consider the purchase of gold as an investment (capital account transaction) rather than a current account transaction as far as the government is concerned. Explain whether or not this solves the problem? (1)

[15]

Q. 3) You have been engaged to build a Monte Carlo simulation model predicting future returns from a portfolio of fixed interest securities. The portfolio is made up of securities of various terms to maturity, denominated in a wide range of currencies and with fifty different issuers.

i) Describe a practical approach to incorporate future default losses of individual securities in your model. (5)

ii) Describe a practical approach to incorporate anticipated positive correlations of defaults amongst the securities. (2)

[7]

Q. 4) **i)** State the principal function of a custodian. (1)

ii) Explain the difference between a custodian and a custodian trustee. (2)

iii) An investment manager has employed the services of a global custodian for many years. The global custodian has announced its intention to withdraw its services at the next renewal of the service agreement. State the issues that the investment manager must consider when interviewing potential replacement custodians. (4)

[7]

Q. 5) You are the country manager of an investment advisory company in 'Actuaria' country. The firm is part of an international investment advisory firm having presence in 30 countries, largely advising governments and large financial institutions. A consortium of financial institutions has approached your firm to advise on the design and construction of a new capital market index which will be representative of the investment opportunities available to the financial institutions.

i) Explain how such a capital market index will be constructed, giving appropriate formulae and definitions of all terms used. (7)

ii) Explain chain linking and under what circumstances it will be required. (4)

[11]

Q. 6) **i)** What are the three forms of regulation? (3)

ii) The Securities and Exchange Board of India (SEBI) regulates the Indian equity market. As per their regulations, until recently, any entity could not acquire more than 15% of a company without making a public announcement of an open offer to purchase an additional 20% of outstanding shares from the remaining registered shareholders f. What is the explanation for having this regulation? What do you understand to be the key shortcomings of this regulation? (4)

iii) In order to address the shortcomings of this regulation a committee, set up by SEBI, proposed that the minimum threshold for the mandatory open offer be increased from 15% to 25% and that such open offer will be for all the remaining shares in issue. Does this proposal address the shortcomings you have identified in 6.2? (1)

iv) The above proposal was opposed by the industry. The new regulation increased the threshold holding before giving open offer to 25% from 15% but required the purchaser to issue an open offer to acquire up to an additional 26% of the shares in issue. What reason would the industry have had for the move to mandate an open offer for all the remaining shares? What is the rationale for increasing the open offer size to 26% and is this fair to all parties? (2)

[10]

Q. 7) A large public company sold a subsidiary for cash last year. Management is under pressure from a group of shareholders to either employ the cash in the business or return it to the shareholders.

i) Explain the reason for the shareholders demand. (2)

ii) Instead of returning the cash to the shareholders, management is considering investing in a large capital project. Describe an approach that can be used to calculate the minimum acceptable return on equity for the capital project, listing the data required (4)

iii) After the sale of the subsidiary the Company’s stock price fell sharply the management believes that the market is valuing the cash in the books of the company at about 65 paisa for every rupee. Explain the market reaction. (4)

[10]

Q. 8) **i)** Explain using appropriate formulae money-weighted and time-weighted returns, defining all terms used. Explain the advantages and disadvantages of each. (5)

ii) You are in the process of evaluating fund managers for a pension scheme. One fund manager claims that he has outperformed the benchmark index significantly in a very turbulent year just gone by. His performance data is given below.

Date	MV of equity (INR Cr)	Cash inflow/outflow	MV after Cash Flow	NIFTY
31-Dec-07	102	0	102	6,139
31-Mar-08	72	12	84	4,735
30-Jun-08	75	-30	45	4,041
30-Sep-08	50	100	150	3,921
31-Dec-08	190	0	190	5,500

Calculate the money and time weighted rates of return and comment on the veracity of his claim (8)

iii) Explain the Sharpe ratio and for what it is used. (3)

iv) The above fund has a std. deviation of 30%. You compare this to another fund which has a TWRR of -11% and standard deviation of 15%.If the risk free rate is 7%, use Sharpe ratio to compare the two funds. Comment on the results (4)

[20]

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