INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

20th October 2009

Subject SA5 – Finance

Time allowed: Three hours (9.45* - 13.00 Hours)

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 expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which are meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However if application specific to any other country is quoted in the answer the same should answer the question with reference to Indian environment.*

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

6. *Mark allocations are shown in brackets.*

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

Q 1) You are an Actuary specialising in Corporate Finance and Risk Management. You are a part of a large Financial Services Consulting Firm which provides a wide range of financial & investment advisory services to clients in the Banking, Financial Services and Insurance verticals.

A) One of your clients is a large housing finance company. This company is planning to securitize part of its residential mortgage portfolio and issue mortgage backed securities (MBS)

i) With the help of a diagram, provide a detailed description of a mortgage backed security (MBS) transaction. (7)

ii) Briefly describe how MBS differs from CMO (Collateralized Mortgage Obligation) (3)

iii) **a)** From an investor's standpoint, discuss the risks associated wit h MBS. (3)

b) Explain how the securitisation can be structured to address these risk (6)

iv) Briefly discuss the recent problems encountered with MBS in the US market and suggest measures to avoid recurrence of such problems. (8)

v) The client has requested you to develop a process for valuing MBS. You believe that lending rates in future can fall below the current lending rate and hence you expect borrowers to prepay their mortgages.

a) Describe the valuation process for valuing the MBS taking into account your expectation as described above. (8)

b) Briefly explain how your valuation process can be used to calculate the OAS (Option Adjusted Spread) (3)

B) Another client of your firm is a large commercial bank. The credit rating for the debt securities of this bank has been recently dow ngraded from AA (+) to AA (-). One of the reasons cited by the rating agency for the downgrade is that bank does not have a comprehensive risk management framework. The Chief Executive Officer (CEO) of the bank wants your firm to develop a holistic risk management framework.

As a member of the team working on this engagement, you have been asked to work on (a) assessing operational risk and (b) developing a risk aggregation model

vi) **a)** Explain "Operational Risk" (3)

b) Describe the approaches you would use for assessing operational risk on a relative basis – relative to comparable banks (6)

vii) You are required to develop a risk aggregation model for estimating the likelihood of incurring a loss in excess of the given amounts arising from market risk, credit risk and operational risk. What do you think should be the key features of this model? (7)

C) A third client of your firm is a pension fund. The sponsoring employer for this fund is a large public sector bank. The bank wants to calculate the VaR (Value at Risk) for the asset portfolio of the pension fund.

viii) a) Define "Value at Risk". (2)

b) Discuss whether VaR should be calculated using a stochastic method or a historical method. (2)

c) Describe how you will modify the standard VaR methodology for calculating the VaR for the asset portfolio of the pension fund. (6)

D) Your consulting firm has recently started providing financial advisory services to small and medium sized companies in the IT (Information Technology) sector.

One of the clients in this segment is a medium sized listed IT company providing IT solutions to insurance companies in the areas of policy administration customer relationship management and fund management.

This client company has a "zero debt" capital structure. The current market capitalisation of the company is Rs. 70 million

ix) What do you think can be the reasons for the company to adopt a "Zero debt" capital structure? (6)

x) The CFO of the company wants you to set an appropriate dividend policy for this company. He believes that the company should follow a strategy of paying no dividends for the next five years and use the "retained earnings" for funding future growth.

a) What can be the rationale underlying the CFO's belief? (3)

b) Briefly discuss the factors you would take into while setting a dividend policy for this company? Contrast these factors with those that would be relevant for a large listed company. (7)

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Q 2) You are the financial advisor to the Central Bank of QWERTY, which is a small country. This country has a very vibrant financial sector similar to that of Singapore and is largely self regulated.

The Central Bank of the country believes that the self regulatory system needs to be gradually replaced by a system regulated by the Government.

The Central Bank proposes (a) to introduce a comprehensive regulatory framework for regulating financial services, and (b) to set up an independent regulatory body like the FSA (Financial Services Authority) in the UK.

i) Briefly discuss the advantages of having a self – regulated system vis-a-vis a system regulated by the Government (5)

ii) List the key principles underlying the financial services regulations in the UK. (5)

iii) What should be the key objectives of the proposed regulatory body? (4)

iv) The Central Bank is also planning to introduce a code for regulating corporate mergers and takeovers. Discuss the key factors you would take into account for drafting an appropriate code. (6)

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