INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

27th May, 2013

Subject SA5 – Finance

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 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 Candidate 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.*
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) You are being interviewed for risk manager position at ABC International. To help you understand the company, you have been provided with ABC's assessment of its exposure to market risk and credit risk.

		Cumulative Probality of Loss						
Loss in 1000 Crore INR	0.25	0.5	0.75	1	1.25	1.5	1.75	2
Market Risk	87%	93%	95.10%	98.00%	99.10%	99.70%	99.90%	99.95%
Credit Risk	90%	94%	95.30%	97.50%	98.90%	99.20%	99.90%	99.95%

This position will be responsible for developing and implementing ERM framework in the organization .The person will be immediately responsible for supporting the launch of a new product targeted to Indian bank clients, which will provide indemnification against operational risk losses.

The interview had two rounds and the below mentioned questions were asked in different rounds:

Round I

i) Define operational risk (1)

ii) List different operational risk borne faced by any large diversified financial company (2)

iii) Why is hard to quantify operational risk and suggest some common methods that help companies to model operational risk (4)

iv) The interviewer has asked for your opinion regarding the viability of ABC offering this product for Indian banking market. Provide arguments for and against ABC offering the product. (3)

v) Outline for the interviewer what you believe to be the most important considerations in structuring and underwriting such a product. (5)

Round II

i) Define VaR and discuss it in the context of credit risk. Should we use real –world or risk –neutral default probability for calculation of credit value at risk and for adjusting the price of a derivative for defaults (6)

ii) Value at Risk and stress testing are two methods of assessing downside risk. Discuss how the two measures differ and the advantages and disadvantages of each. (5)

iii) "A long forward contract subject to credit risk is a combination of a short position in a no-default put and long position in a call subject to credit risk" Explain this statement . (3)

iv) "When a bank is negotiating currency swaps, it should try to ensure that it is receiving the lower interest rate currency from a company with a low credit risk." Explain why. (4)

v) Is there a potential asymmetric information problem in credit default swaps? (2)

Round III :

The interviewer has entrusted you with the task of developing an approach paper for installing an ERM framework for ABC International. It is intended that the ERM framework should include relevant aspects of IRDA regulation requirements and ABC's corporate governance framework [which has been provided by the interviewer]. You can assume that ABC International is both into life and general insurance business. A risk aggregation model needs to be developed separately for life and general insurance business for all the material risk facing the business.

i) Outline the salient features from the IRDA regulation and the international developments in US and EU like Solvency II that you will refer to for the purpose of developing the approach paper. Also, document the main features which should be incorporated into the design of a suitable risk aggregation model for ABC International. (15)

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Q. 2) ABC is a large retail bank that operates in two major sectors and is listed on all large stock exchanges in the domestic market:

1) the retail banking, mortgage lending market

2) the investment banking and corporate lending market

The bank finances the assets primarily through collecting funds from retail depositors through savings and fixed deposits of various tenors up to 10 years. The mortgage loans range from 10 to 25 years on a floating rate basis with a fixed interest for the first 5 years. The corporate loans range from 5 to 10 years on a floating rate basis.

You are heading the risk department of the Bank. The CEO of the Bank has asked you to prepare a report on appropriate methods for determining the amount of capital the Bank should have and how the capital should be allocated to the businesses of the Bank.

i) As part of the report, you are asked to describe two methods by which this can be achieved by using top-down approach. You need to include as part of the report the limitations of the methods. (15)

You are also asked to examine the possibility of devising a risk-based capital model for allocation of capital.

ii) What are the key advantages of having such a model (5)

As part of your risk reports to the Management, you periodically describe the various risks the bank faces and provide suggestions on mitigating these risks.

iii) **a)** List the key risks the bank is exposed to? (4)

b) Describe the interest rate risk the bank is exposed to and how it can mitigate the same by using swaps and futures (6)

As part of its corporate lending, the bank has set up a small venture fund to invest in new companies on a pilot basis as it plans to float a separate venture funding company, if the pilot programme is successful. As part of this it has received a proposal from a management team for funding for a management buyout of a telecom software company that enables internet services on mobile telephone.

iv) In this context explain the following terms:

a) strip financing

b) mezzanine finance

c) management buyout (3)

v) Briefly describe the key features of venture funding and what options are available for the bank to structure the venture funding? (10)

Due to a spate of regulatory changes, the telecom sector has slowed down which have impacted its new sales and has resulted in tight cash flow position even though it gets revenue from its existing maintenance contracts.

vi) What are the key risks the company faces due to its cashflow position in the near term? (7)

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