MIA-013 (F2F)

M.Sc. ACTUARIAL SCIENCE (MSCAS)

Term-End Examination
00752
June, 2013

MIA-013 (F2F) : ACTUARIAL SCIENCE

Time : 3 hours   *Maximum Marks : 100*

SECTION - A

There are *seven* questions, each of 8 marks attempt *any five*.

1. Describe how the actual experience can be   8
    monitored and assessed in terms of :

    (a)   The reasons for monitoring experience

    (b)   The data required

    (c)   The use of the results to revise models and
          assumption

2. Name and briefly describe six approaches to   8
    measuring investment risk.

3. (a) A reinsurer analyses the sickness claims   6
experience of the individual companies it
reinsures. List the reason why the
experience of two of it's major clients might
differ significantly.

(b) Explain the advantage and disadvantage of   2
the use of summarised data for valuing a
retirement benefit scheme.

4. (a) Explain the difference between an active   2
and a passive investment Management
Strategy.

(b) Under what circumstances might a passive   4
strategy be most appropriate for a particular
investor ?

(c) Define the volatility of a fixed interest stock.   2

5. List the factors that can influence a long term   8
investment strategy and that might be taken into
account by an institutional investor in making
strategic investment decisions.

6. (a) List the steps in developing and applying   5
a deterministic model.

(b) Discuss the advantage of deterministic   3
model.

7. (a) What factors determine the degree of accuracy needed in determining assumptions.   4

    (b) Explain why, under certain circumstances the use of cautious assumptions to value a benefit scheme may be beneficial to the sponsor.   4

SECTION - B

There are *six* questions, each of *15* marks. Answer *any four*.

8. (a) What is data in actuarial calculation ? Discuss the various sources of data.   7

    (b) Discuss the various errors which may occur in data collection.   8

9. (a) Describe how a stochastic asset-liability model can be used to asses the long term solvency position of a pension fund.   7

    (b) Discuss the solvency-II norms for insurance regulations.   8

10. Outline the main features of the following types of reinsurance arrangements -   15

    (a) Quota share

    (b) Surplus

    (c) Risk excess of loss

    (d) Stop loss

    (e) Catastrophe excess of loss.

11. (a) Describe three different Profit Criteria that could be used to summarise the relative profitability of financial contracts and discuss their advantage and disadvantage.   10

    (b) "No expenses are truly fixed". Discuss this statement.   5

12. (a) List the benefits of risk management. 4

(b) Define the terms : 3

(i) systematic risk

(ii) diversifiable risk

(c) A coal-fired power station is carrying out a 8
risk assessment and management excercise.

(i) Identify important risk to which
company is exposed.

(ii) Outline four approaches to managing
risk.

13. (a) Discuss the Based-II norms for Banking 8
regulations.

(b) You are leading a project team responsible 7
for ensuring that a newly established
general insurance company stores good
quality data. Outline the key requirements
to ensure this is achieved. (Including those
relating to the design of the proposal and
claims forms.)

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