INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

21 September 2022 (am)

Subject SP4 – Pensions and Other Benefits Specialist Principles

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

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1 The sponsoring employer of a large, well funded final salary pension scheme has asked an insurer to provide a quotation for buying out all future benefit payments from the scheme.

(i) Outline the key information the insurer should request from the scheme in order to prepare a quotation. [4]

(ii) Describe the other factors that may influence the value quoted by the insurer. [5]

[Total 9]

2 A company operates a defined benefit pension scheme. The scheme is closed to future accrual of benefits for members. Scheme benefits increase annually in payment and deferment with price inflation.

(i) Write down four key liability risks that could be mitigated via the investment strategy. [2]

(ii) Explain how investments can be used to mitigate liability risks. [8]

[Total 10]

3 The Regulator in a developed country requires all final salary pension schemes to be valued every 2 years to determine whether each scheme holds sufficient assets to meet the expected future cost of providing the accrued benefits, and to determine the contributions required to fund any shortfall for that scheme.

The valuation must be carried out by an Actuary approved by the Regulator.

(i) Give examples of how Actuaries may be regulated. [4]

The valuation must be carried out using a discount rate that is set with reference to a quoted bond yield plus a risk premium.

(ii) Describe the issues the Actuary should consider when setting an appropriate discount rate. [9]

The Regulator requires clear disclosure of key scheme information to members.

(iii) Give examples of the key information that should be disclosed to members once the valuation is complete. [4]

[Total 17]

4 A company is designing a new defined contribution scheme for its employees.

(i) Explain what is meant by 'Net Replacement Ratio'. [1]

The Employee Benefits Manager has stated that a Net Replacement Ratio of 50% is appropriate.

(ii) Suggest possible reasons why a Net Replacement Ratio of less than one may be appropriate. [3]

(iii) Estimate the total contribution rate required for a new employee to achieve a Net Replacement Ratio of 50% assuming the resulting pot is used to purchase an annuity at retirement. You should clearly set out your assumptions and method. [10]

The Employee Benefits Manager wants to take into account Environmental, Social and Governance issues in the investment options available for members.

(iv) Describe the options and considerations that could be taken into account. [6]

[Total 20]

5 The Trustees of a large, mature defined benefit pension scheme are carrying out an actuarial valuation and, as part of the exercise, they wish to assess the covenant of the sponsoring employer.

(i) Define in your own words what is meant by sponsor covenant. [2]

The Trustees are currently deciding whether to commission a full independent business review to assess the sponsor covenant.

(ii) Outline the relevant considerations for the Trustees. [5]

The Trustees carry out a covenant review, the results of which show that the strength of the covenant has improved significantly since the previous valuation 3 years ago.

(iii) Discuss the actions that the Trustees may take in light of this result. [9]

The actuarial valuation is completed and the result shows that the scheme is in surplus.

(iv) Give four distinct reasons why surpluses may arise. [2]

The Trustees are considering using the surplus to award a one-off discretionary pension increase to scheme members.

(v) Describe the factors that the Trustees should consider before deciding whether to use the surplus in this manner. [8]

[Total 26]

6 A member of a defined contribution pension scheme is considering their options on retirement, including using their fund at retirement to purchase an annuity with an insurance company.

(i) Describe the potential risks arising from an annuity purchase. [4]

The member is considering purchasing units in an alternative retirement product. Under this arrangement:

- once an initial investment is made, a policyholder is not permitted to increase or decrease the number of units held.
- the unit price is determined monthly for each individual policyholder based on mortality: the unit price multiplied by the probability of survival of the policyholder equals the value of any expected cash distributions from other policyholders over the next month.
- whenever a policyholder dies, their units are released and the funds are distributed to other policyholders as a cash payment. The cash is distributed in proportion to the value of units held. Cash distribution happens on a monthly basis.
- all funds are invested based on a pre-defined strategy, and unit values also change monthly for all policyholders in line with the underlying investment performance (subject to an annual management charge of 0.5% p.a.).

(ii) Compare the risk profile of this alternative arrangement to an annuity purchase. [6]

A third option for the member is to invest their accumulated fund at retirement into a drawdown product with an insurance company. The product consists of a number of different drawdown funds that an investor can choose between.

(iii) Describe the factors that should be considered in setting an appropriate investment strategy for a drawdown fund. [8]

[Total 18]

END OF PAPER