



JOMO KENYATTA UNIVERSITY  
OF  
AGRICULTURE AND TECHNOLOGY  
UNIVERSITY EXAMINATIONS 2017/2018  
FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN ACTUARIAL SCIENCE

HRD 2301: LIFE ASSURANCE THEORY

DATE: AUGUST 2018

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question *ONE* and any other *TWO* questions.
2. Show all your workings.
3. All questions except question one carry equal marks.

### QUESTION ONE (30 MARKS)

- a) Briefly describe the different major categories in which life-based contracts falls [2 marks]
- b) Discuss the factors which a life insurance company should take into consideration when determining its investment policy [4 marks]
- c) A life assurance company is considering expanding its products distribution channels through Bancassurance.
- i) Describe what is meant by Bancassurance. [2 marks]
- ii) Discuss the advantages and disadvantages of this proposal to both parties involved in this distribution arrangement. [6 marks]
- d) A proprietary life insurance company is considering launching a new without profits whole life assurance contract. Regular monthly premiums will be payable from inception for the first 20 years of the policy or until earlier death. Describe the factors that the company would take into account in deciding whether to launch this product. [5 marks]
- e) Describe how the principal actuarial investigations help to manage risks in a life insurance company. [6 marks]
- f) Distinguish between takaful insurance and proprietary insurance models [5 marks]

### QUESTION TWO (20 MARKS)

- a) Define the term reserves and state four purposes reserves are required for. [5 marks]
- b) A life insurance company has, for several years, been one of the leading providers in its country of without profits immediate annuities. One of its actuaries has raised concerns regarding the level of mortality risk arising from this business. Describe briefly the other risks that the life insurance company might face as a result of selling this business. [8 marks]
- c) Describe the principles appropriate for setting the supervisory reserves for a life insurance policy. [7 marks]

### QUESTION THREE (20 MARKS)

- a) Describe the Revalorization method for distributing any surplus which may arise from a profit life assurance contract. [10 marks]
- b) Describe the principal practical difficulties that are faced when using the revalorization method of distribution [7 marks]
- c) Discuss any three risks of an endowment assurance contract [3 marks]

## QUESTION FOUR (20 MARKS)

- a) Maisha life insurance company has a large portfolio of single premium whole life unit linked bonds. The single premium can be invested in any one of a range of available linked funds. A policyholder may switch between funds at any time. The first switch in any year can be made free of charge, and any further switches incur a charge which is linked to inflation. Past experience has shown that on average policyholders switch more often than once per annum. The company is about to perform the calculation of its supervisory reserves for this product.
- i) Describe the principles that it should follow. [5 marks]
  - ii) Describe how the company would set the assumptions for this purpose. [10 marks]
  - iii) Outline the ways in which the government of a country may use its fiscal regime to increase the consumer demand for savings products of life insurance companies. [5 marks]