



# THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

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**MAIN EXAMINATION**

**SEPTEMBER – DECEMBER 2020 SEMESTER**

**FACULTY OF SCIENCE**

**DEPARTMENT OF MATHEMATICS AND ACTUARIAL SCIENCE**

**REGULAR PROGRAMME**

**ACS 100: INTRODUCTION TO ACTUARIAL SCIENCE**

**Date: DEC 2020**

**Duration: 2 Hours**

**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

## **QUESTION ONE**

- a) State and explain four types of risks faced by an insurance company **(4 marks)**
- b) Describe two conventional life assurance products **(4 marks)**
- c) Describe the following:
  - i) Primary financial Market **(2 marks)**
  - ii) Call option **(2 marks)**
  - iii) Corporate bond **(2 marks)**
- d) State two benefits of Life assurance **(2 marks)**
- e) State and explain four principles of insurance **(8 marks)**
- f) Highlight three aspects by which financial assets differ from physical assets **(6 marks)**

## **QUESTION TWO**

- a) List three disadvantages of having common stock in an investor's portfolio **(3 marks)**
- b) Differentiate between insurable and un-insurable risks **(3 marks)**
- c) State and explain three principles of the Actuaries code, which are applicable to all members of IFoA **(6 marks)**
- d) Highlight three ways in which underwriting can be used by an insurer as a risk management technique. **(3 marks)**
- e) List three important economic functions provided by the financial markets **(3 marks)**
- f) Describe preferred stocks as a type of investment vehicle **(2 marks)**

### QUESTION THREE

- a) Define the following terms as used in medical/health insurance:
- i) Deductible
  - ii) Stop loss limit
  - iii) Rider
- ( 3 marks)
- b) Differentiate between immediate annuity and deferred annuity ( 3 marks)
- c) Highlight three hazards to which an insurance policy holder can be exposed to ( 6 marks)
- d) Highlight four factors that influence the choice of an investment vehicle ( 4 marks)
- e) Describe four types of claim adjusters ( 4 marks)

### QUESTION FOUR

- a) Distinguish between risk avoidance and risk transfer in risk management ( 3 marks)
- b) State three characteristics of insurable risks ( 3 marks)
- c) Differentiate between debentures and treasury bonds ( 3 marks)
- d) Define the following terms as used in reinsurance
- i) The ceding company
  - ii) Retention limit
- (2 marks)
- e) An investor deposits \$4,000 into a savings account that pays 9% simple interest at the end of each year. Compare how much the investor would have after 5 years if the money were:
- invested for 5 years
  - invested for 3 years, then immediately reinvested for a further 2 years.
- (5 marks)
- f) Differentiate between facultative and treaty reinsurance ( 4 marks)

### QUESTION FIVE

- a) An investor deposits \$500 into an account today. Calculate the amount in the account after 6 years
- i) Using a simple rate of interest of 7% ( 2marks)
  - ii) Using a compound rate of interest of 7% ( 2marks)
  - iii) Comment on the difference between the amounts obtained in (i) and (ii) (1 mark)
- b) Describe five types of un-insurable risks ( 5 marks)
- c) Describe three types of short term investment vehicles ( 6 marks)
- d) Distinguish between speculative and pure risk ( 4 marks)

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