

KISII UNIVERSITY
SCHOOL PURE AND APPLIED SCIENCES
DEPARTMENT MATHEMATICS AND
ACTUARIAL SCIENCE
COURSE TITLE: CONTEMPORARY ISSUES
IN ACTUARIAL SCIENCE
COURSE CODE: BACS 403
FINAL EXAM JUNE 2022
INSTRUCTIONS: Answer question one and
any other 2 questions in section B

SECTION A (30 marks)

Question One (30 marks)

- (a) Write the latex codes for this table (5mks)

Leah1	Niko1	Niko1x
Leah2	Niko2	Niko1y
Leah3	Niko4	Niko1z

- (b) Describe Statutory roles undertaken by actuaries (5mks)
- (c) Highlight legislation and regulations that govern the actuarial field. (5mks)

(d) Write the latex codes (5mks)

$$E(Y) = \left[\frac{-(kx - E)\lambda^\alpha}{(\lambda + x)^\alpha} \right]_{E/k}^{\infty} + \int_{E/k}^{\infty} \frac{k\lambda^\alpha}{(\lambda + x)^\alpha} dx$$

(e) Describe actuarial Professional conduct standards. (5mks)

(f) Describe Money market instruments. (5mks)

SECTION B

Question Two (20 marks)

(a) Write the latex codes. (5mks)

1. Milk
 2. Bread
 3. etc
 4. Beer
- Milk
 - Bread
 - etc

(b) Highlight statutory bodies that govern the actuarial science profession. (5mks)

(c) Define a Bond and highlight on type of Bond markets available. (5mks)

(d) Highlight on different ethical concerns facing the actuarial profession and describe how they affect Health and Life insurance sectors of the actuarial organizations (5mks)

Question Three (20 marks)

- (a) Write the latex code for this table (5mks)

$$G(t) = \frac{\theta^2}{(\theta + 1)^2} \sum_{x=0}^{\infty} \left[\frac{t}{(\theta + 1)} \right]^x + \frac{\theta^2}{(\theta + 1)^2(\alpha\theta + 1)}$$

- (b) Describe technical actuarial standards that should be observed by actuaries (5mks)
(c) Define a Equity shares and highlight on type of Equity markets available (5mks)
(d) Define operational and External credit risk elaborating on different type of each risk (5mks)

Question Four (20 marks)

- (a) Write the latex code for this table. (5mks)

$$L_x G(T) = \int_0^{\infty} e^{-tx} \frac{\beta}{\alpha} \left(\frac{x}{\alpha} \right)^{\beta-1} e^{-\left(\frac{x}{\alpha}\right)^{\beta}} dx$$

- (b) Define market and credit risk elaborating on different type of each risk (5mks)
(c) Describe the rational of Basel Accord (Basel I) and Basel Capital Accord (Basel II) (10mks)

Question Five (20 marks)

- (a) Write the latex code for this table (5mks)

$$f(x) = \begin{cases} 1 & \text{if } x \geq 8 \\ \frac{1}{2} & \text{if } x \geq 8 \\ c + 5 & \text{elsewhere.} \end{cases}$$

- (b) Define Business and Liquidity risk elaborating on different type of each risk (5mks)
- (c) Highlight on different ethical concerns facing the actuarial profession and describe how they affect Property and Casualty , Academic , Consulting and Government and Pension schemes sectors of the actuarial organizations . (10mks)