

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
RESIT/SPECIAL EXAMINATION**

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
ACTUARIAL SCIENCE**

ACMT 101: INTRODUCTION TO ACTUARIAL SCIENCE

STREAMS: BSC

TIME: 2 HOURS

DAY/DATE: MONDAY 28/08/2023

2.30 P.M – 4.30 P.M.

QUESTION ONE

- a) Outline 4 reasons why to take insurance. (4 marks)
- b) Define what is an annuity. (2 marks)
- c) List and briefly explain any 3 types of risk? (6 marks)
- d) outline 3 ethical practices that professional actuaries are expected to uphold. (6 marks)
- e) A man borrowed Kshs.800 from a bank that charges 5.5 % interest in advance. He received Kshs.765 from the loan. When will the loan be due? (6 marks)
- f) List and explain the 3 structured ways of planning/saving for retirement. (6 marks)

QUESTION TWO

- a) Explain what the notation ${}_t p_x^{ii}$ mean? (2 marks)
- b) A life table is defined by the following values of p_x :

x	p_x
0	0.90
1	0.80
2	0.60
3	0.30
4	0

Calculate each of the following

- i. ${}_2 q_1$ (4 marks)
- ii. ${}_3 p_1$ (2 marks)
- iii. ${}_3 q_2$ (4 marks)
- c) An investment of Kshs.10,000 in an account accumulated to Kshs. 15,000 after 6 years.
- i. State the accumulation factor $A(0, 6)$ (3 marks)

- ii. Find the annual compound interest rate which would give the accumulation factor above- give your answer upto 4 decimal points (5 marks)

Question three

- a) What is Professional Indemnity Insurance? (2 marks)
b) Let $f(x) = 2x(x^2 - 5x + 7)$. Evaluate the derivative of f at 2. (4 marks)
c) Explain two major differences between Ordinary and Preference shares (4 marks)
d) Discuss in details the five basic principles of Insurance (10 marks)

Question four

- a) State any 4 financial instruments available for an investor in Kenya (2 marks)
b) Define the following
i) Competing risks (2 marks)
ii) Random variable T_x (4 marks)
c) List and explain any four General insurance products in Kenya (12 mark)

QUESTION FIVE

- a) Define what is discounted value of a payment. (2 mark)
b) List three types of financial risks. (3 marks)
c) Distinguish between a Term Assurance and an Endowment Assurance. (4 marks)
b) Discuss what is entailed in the below processes of the Risk management framework/ACC
i) Analyzing the risks (3 marks)
ii) Treat risks (5 marks)
iii) Monitor and review (3 marks)
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