



# **MURANG'A UNIVERSITY OF TECHNOLOGY**

## **SCHOOL OF BUSINESS AND ECONOMICS**

**DEPARTMENT OF COMMERCE**

**UNIVERSITY ORDINARY EXAMINATION**

**2023/2024 ACADEMIC YEAR**

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR BACHELOR OF  
SCIENCE IN ACTUARIAL SCIENCE**

**AMC 409: INVESTMENT AND ASSETS MANAGEMENT II**

**DURATION: 2 HOURS**

### **INSTRUCTIONS TO CANDIDATES:**

1. Answer Question One and Any other Two Questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

**SECTION A: 30 MARKS (Answer all questions in this section)**

**QUESTION ONE (30 MARKS)**

- a) Discuss the THREE theories of the “term structure of interest rate” (6marks)
- b) State FIVE assumptions under which capital Assets Pricing Model (CAPM) operates. (5marks)
- c) Explain the THREE forms of Efficient Market Hypothesis (6marks)
- d) Differentiate between systematic risk and unsystematic. (2marks)
- e) State THREE factors that affect the correlation on between two variables. (3marks)
- f) Define and sketch an Efficient frontier. (5marks)
- g) State any THREE weaknesses of Arbitrage Pricing Model. (3marks)

**SECTION B: 40 MARKS (Answer any two questions in this section)**

**QUESTION TWO (20 MARKS)**

- a) Explain **Three** composite methods used to measure portfolio performance. (6 marks)
- b) A portfolio consists of three securities A, B and C with the following parameters

	A	B	C
Expected return %	50	44	40
Standard deviation (%)	35	31	29

Correlation	
AB	-0.49
BC	+0.41
AC	+0.59

**Required:**

Assuming the securities are equally weighted, compute:

- i. The return (4 marks)
- ii. The risk (4 marks)
- c) Discuss **three** factors that affect the expected returns under Arbitrage Pricing Theory. (6 marks)

**QUESTION THREE (20 MARKS)**

- a) Discuss Markowitz Model in relation to risk and return interrelationship (4marks)
- b) Using diagram, illustrate THREE categories of investors in regards to risk. (5marks)
- c) The Directors of Wema Ltd wish to use an alternative estimate of cost of capital. They prefer the capital asset pricing model. The following details have been provided:

Portfolio	Return (%)	Variance of returns %	Covariance of returns and security (A) with Market (M)
(M)	14.34	0.4012	0.4012
B	13.46	0.363	0.2461
C	9.948	0.0	0.0
D	26.43	1.463	0.345
E	14.38	0.207	0.3627
U	?	?	0.439

**Required**

- i. Determine the Beta Coefficient of each Portfolio security and interpret the results of each security. (7 marks)
- ii. Determine the cost of capital using the capital asset pricing model. (4 marks)

**QUESTION FOUR (20 MARKS)**

a) The following information relates to the yields of the government bonds for the year 2022

Maturity (years)	Yield (%)
0-1	5.90
1-2	5.91
3-4	6.09
4-5	6.10
5-6	6.25
6-7	6.48
7-8	6.42
8-9	6.41
9-10	6.38
>10	7.18

**Required**

- i. Draw a yield curve (6 marks)
  - ii. Comment on the results (2 marks)
  - iii. Discuss the theory underlying the nature of the yield curves (2 marks)
- b) The following information shows the effect of unannounced bonus issue on market efficiency.

Abnormal Return	Time in week before and after bonus announcement
0.0	-6
0.5	-5
-0.5	-4
1.4	-3
-0.3	-2
-0.9	-1
2.0	0
0.1	1
-0.1	2
-0.1	3
0.3	4
-0.2	5
0.3	6

- i. Prepare accumulative abnormal return (5marks)
- ii. Interpret the meaning of the negative and positive values in the second column (3marks)
- iii. Indicate the form of the market efficiency portrayed by this information. Justify your answer. (2 marks)