



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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## UNIVERSITY EXAMINATIONS 2023/2024

THIRD YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF COMMERCE

### BFC 3381: PROJECT APPRAISAL

DATE: APRIL 2024

TIME: 2 HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

#### QUESTION ONE (30 MARKS)

- a) Buuri Dairy limited wishes to expand its output by purchasing a new machine worth 170,000 and installation costs are estimated at 40,000/=. In the 4th year, this machine will call for an overhaul to cost 80,000/=. Its expected inflows are:

Year	1	2	3	4	5	6
Cashflows	60,000	72,650	35,720	48,510	91,630	83,715

This company can raise finance to purchase machine at 12% interest rate.

Compute NPV and PI and advise management accordingly. (10 Marks)

- b) Project A has the following cashflows over its useful life of 3 years. The market value (Abandonment value) has also been given.

Year	Cash flow	Abandonment value
	Sh'000'	Sh'000'
	(5,800)	5,800



1	3,000	4,000
2	2,875	2,900
3	2,750	0

Required:

Determine when to abandon the project assuming a discount rate of 10%. (10 Marks)

- c) The Human resource manager of the organization you work for feels that making investment decisions consumes a lot of time. Therefore, the organization should invest in any project that appears viable. Comment on the statement. (10 Marks)

### QUESTION TWO (20 MARKS)

Consider two investments A & B each having the following characteristics:

Investment	Expected Return (0%)	Proportion
A	20	2/3
B	40	1/3

Required:

Compute the portfolio standard coefficient between the assets is (10 Marks)

- i. 1
  - ii. 0
  - iii. -1
- b) Discuss three ways of classifying capital investments (6 Marks)
- c) Discuss the assumptions applied by the capital asset pricing model. (4 Marks)

### QUESTION THREE (20 MARKS)

- a) Security returns depend on only three riskfactors-inflation, industrial production and the aggregate degree of risk aversion. The risk free rate is 8%, the required rate of return on a portfolio with unit sensitivity to inflation and zero-sensitivity to other factors is 13.0%, the required rate of return on a portfolio with unit sensitivity to industrial production and zero



sensitivity to inflation and other factors is 10% and the required return on a portfolio with unit sensitivity to the degree of risk aversion and zero sensitivity to other factors is 6%. Security i has betas of 0.9 with the inflation portfolio, 1.2 with the industrial production and -0.7 with risk bearing portfolio— (risk aversion)

Assume also that required rate of return on the market is 15% and stock i has CAPM beta of 1.1

**Required:**

Compute security i's required rate of return using

- i. CAPM
- ii. APT (10 Marks)

b) Gacuvirori Ltd has six projects available for investment as follows:

Project	Initial cost Sh.'M'	NPV @ 15% cost of capital
1	60	21
2	15	9
3	20	9
4	55	15
5	30	20
6	40	-2

The firm has Sh.100 M available for investment.

Identify which projects should be undertaken. Using P.1 and NPV ranking, comment on your answer. (10 Marks)

**QUESTION FOUR (20 MARKS)**

a) Marima Investments company Ltd. wishes to raise funds amounting to Sh.10 million to finance a project in the following manner:

Sh.6 million from debt; and

Sh.4 million from floating new ordinary shares.

The present capital structure of the company is made up as follows:

1. 600,000 fully paid ordinary shares of Sh.10 each
2. Retained earnings of Sh.4 million
3. 200,000, 10% preference shares of Sh.20 each.
4. 40,000 6% long term debentures of Sh.150 each.



The current market value of the company's ordinary shares is Sh.60 per share. The expected ordinary share dividends in a year's time is Sh.2.40 per share. The average growth rate in both dividends and earnings has been 10% over the past ten years and this growth rate is expected to be maintained in the foreseeable future.

The company's long term debentures currently change hands for Sh.100 each. The debentures will mature in 100 years. The preference shares were issued four years ago and still change hands at face value.

**Required:**

- i. Compute the component cost of:

Ordinary share capital;	(3 Marks)
Debt capital	(3 Marks)
Preference share capital.	(3 Marks)
  
- ii. Compute the company's current weighted average cost of capital. (6 Marks)

**QUESTION FIVE (20 MARKS)**

The Zigalagala Flour Company Ltd. is considering a substantial investment in a new production process. From a variety of sources, the total cost of the project has been estimated at Sh.20 million. However, if the investment were to be increased to Sh.30 million, the productive capacity of the plant could be substantially increased. Due to the nature of the process, it would be exorbitantly expensive to increase capacity once the equipment is installed.

One of the problems facing the company is that there is a considerable degree of uncertainty regarding demand for the product. After some research which has been conducted jointly by the marketing and finance departments, some data has been produced. These are shown below:



Investment A (Sh.20 m)				Investment B (Sh.30m)		
	Year	Demand Probability	Annual Net Cash Flow	Demand Probability	Annual Net Cash Flow	
			<u>Sh. (million)</u>		<u>Sh.(million)</u>	
1.	1 -4	0.4	6	0.3	10	
	5 - 10	0.4	5		7	
2.	1 -4	0.4	6	0.5	8	
	5 - 10		2		4	
3.	1 - 10	0.2	2	0.2	1	

Cost of capital for the firm is 10%.

**Required:**

Prepare a statement which clearly indicates the financial implications of each of the two alternative investment scenarios. (20 Marks)