MACHAKOS UNIVERSITY

University Examinations for 2022/2023 Academic Year

SCHOOL OF BUSINESS, ECONOMICS AND HOSPITALITY AND TOURISM MANAGEMENT

DEPARTMENT OF ECONOMICS

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

MASTER OF ECONOMICS

EAE 816: CORPORATE FINANCE AND INVESTMENTS

DATE: **TIME:**

INSTRUCTIONS:

(i) Answer question one (COMPULSORY) and any other three questions
(ii) Do not write on the question paper
(iii) Show your workings clearly

QUESTION ONE (COMPULSORY) (24 MARKS)

a) Assume the total cost of a college education will be $290,000 when your child enters college in 18 years. You presently have $55,000 to invest. What annual rate of interest must you earn on your investment to cover the cost of your child's college education? (4 marks)

b) A Macrohard Corp. bond carries an 8 percent coupon, paid semiannually. The par value is $1,000, and the bond matures in six years. If the bond currently sells for $911.37, what is its yield to maturity? What is the effective annual yield? (6 marks)

c) Consider the following information about three stocks:

State of the economy	Probability	Rate of Return is State Occurs		
		Stock A	Stock B	Stock C
Boom	0.35	0.24	0.36	0.55
Normal	0.50	0.17	0.13	0.09
Bust	0.15	0.00	-0.28	-0.45

If your portfolio is comprised of 40 percent each of A and B and 20 percent of C.

Compute:

(i) The portfolio expected return. (3 marks)

(ii) The variance of the portfolio. (4 marks)

d) Gypco expects an EBIT of $10,000 every year forever. Gypco can borrow at 7 percent.

(i) Suppose Gypco currently has no debt, and its cost of equity is 17 percent. If the corporate tax rate is 35 percent, what is the value of the firm? (3 marks)

(ii) What will the value be if Gypco borrows $15,000 and uses the proceeds to repurchase stock? (4 marks)

QUESTION TWO (12 MARKS)

a) An investment offers $5,300 per year for 15 years, with the first payment occurring one year from now. If the required return is 7 percent, what is the value of the investment? What would the value be if the payments occurred for 40 years? For 75 years? Forever? (5 marks)

b) Consider a project of the Pearson Company, the timing and size of the incremental after-tax cash flows for an all-equity firm are:

YEAR	CASHFLOWS
0	($1,000)
1	$125
2	$250
3	$375
4	$500

Given the unlevered cost of equity is $r_0 = 10\%$

(i) Now, imagine that the firm finances the project with $600 of debt at $r_b = 8\%$. Given a tax rate of 40%, appraise the project using the Adjusted Present Value Approach (3 marks)

(ii) Using the information above, appraise the project using the Flow-to-equity (FTE) approach (4 marks)

QUESTION THREE (12 MARKS)

a) A project that provides annual cash flows of $28,500 for nine years' costs $138,000 today.

(i) Is this a good project based on the NPV criterion if the required return is 8 percent? What if it's 20 percent? (4 marks)

(ii) At what discount rate would you be indifferent between accepting the project and rejecting it? (3 marks)

b) A stock has an expected return of 14 percent, its beta is 1.45, and the expected return on the market is 11.5 percent. What must the risk-free rate be? (2 marks)

c) Explain the three capital budgeting techniques for a levered firm (3 marks)

QUESTION FOUR (12 MARKS)

a) Safaricom has just paid a cash dividend of $Kshs. 20 per share. Investors require a 12 percent return from investments such as this. If the dividend is expected to grow at a steady 4 percent per year, what is the current value of the stock? What will the stock be worth in five years? (5 marks)

b) You have $10,000 to invest in a stock portfolio. Your choices are Stock X with an expected return of 14 percent and Stock Y with an expected return of 10.5 percent. If your goal is to create a portfolio with an expected return of 12.4 percent, how much money will you invest in Stock X? In Stock Y? (2 marks)

c) A Microgates Industries bond has a 10 percent coupon rate and a $1,000 face value. Interest is paid quarterly, and the bond has 20 years to maturity. If investors require a 12 percent yield, what is the bond's value? What is the effective annual **yield on the bond?** (5 marks)

QUESTION FIVE (12 MARKS)

a) Consider the following cash flows for two mutually exclusive projects and a discount rate of 15 per cent:

YEAR	CASHFLOW (A)	CASHFLOW (B)
0	($300,000)	($40,000)
1	20,000	19,000
2	50,000	12,000
3	50,000	18,000
4	390,000	10,500

(i) If you apply the discounted payback criterion, which investment will you choose? Why? (4 marks)

(ii) If you apply the profitability index criterion, which investment will you choose? Why? (4 marks)

b) Maynard, Inc., has no debt outstanding and a total market value of $250,000. Earnings before interest and taxes, EBIT, are projected to be $28,000 if economic conditions are normal. If there is strong expansion in the economy, then EBIT will be 30 percent higher. If there is a recession, then EBIT will be 50 percent lower. Maynard is considering a $90,000 debt issue with a 7 percent interest rate. The proceeds will be used to repurchase shares of stock. There are currently 5,000 shares outstanding. Ignore taxes for this problem.

Calculate earnings per share (EPS) under each of the three economic scenarios before any debt is issued. (4 marks)