MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

FOURTH YEAR FIRST SEMESTER

SCHOOL OF BUSINESS AND ECONOMICS
BACHELOR OF SCIENCES IN FINANCIAL ECONOMICS

COURSE CODE: ECF 4206

COURSE TITLE: FINANCIAL ECONOMICS

DATE: 12TH OCTOBER,2021 **TIME:0230-0430HRS**

INSTRUCTIONS TO CANDIDATES

Answer Question ONE and any other three questions

This paper consists of seven (7) printed pages. Please turn over.

Question 1

a) Differentiate between the following pairs of terms as applied in Financial Economics

i) Primary financial markets and secondary financial markets **(2 marks)**

ii) Systemic risks and unsystematic risks **(2 marks)**

iii) Callable and uncallable bonds **(2 marks)**

iv) Putable and unputable bonds **(2 marks)**

v) The face value and coupon of a bond **(2 marks)**

b) Suppose a three-factor model is appropriate to describe the returns of a stock. Information about those three factors is presented in the following chart. Suppose this is the only information you have concerning the factors.

Factor	Beta of Factor	Expected Value	Actual Value
GNP	0.0042	$4,416	$4,480
Inflation	-1.40	3.1%	4.3%
Interest Rate	-0.67	9.6%	11.8%

i) What is the systematic risk of the stock return? **(4 marks)**

ii) Suppose unexpected bad news about the firm was announced that dampens the returns by 2.6 percentage points. What is the unsystematic risk of the stock return? **(1 mark)**

iii) Suppose the expected return of the stock is 9.5 percent. What is the total return on this stock? **(2 marks)**

c) Explain any four (4) sources of financial market imperfections. **(8 marks)**

Question 2

a) Define the following terms as applied in the market for bonds

i) Call provisions **(1 mark)**

ii) Put provisions **(1 mark)**

iii) Consol **(1 mark)**

b) Suppose that a bond has a face value of $1,000, a coupon rate of 4% and a maturity of four years. The bond makes annual coupon payments. If the yield to maturity is 4%, compute the bond's price. **(3 marks)**

c) Suppose that a bond has a face value of $1,000, a coupon rate of 8% and a maturity of two years. The bond makes semi-annual coupon payments, and the yield to maturity is 6%. What would be the price of the bond? **(3 marks)**

d) You are given that a bond has a face value of $1,000 and will mature in ten years. The annual coupon rate is 5%; the bond makes semi-annual coupon payments. With a price of $950, what is the bond's yield to maturity? **(3 marks)**

e) A ten-year bond was issued two years ago and is callable in three years at a price of$1,100. The bond's face value is $1,000 and its coupon rate is 7%. Coupons are paid on an annual basis; the current market price of the bond is $1,200. What is the yield to call? **(3 marks)**

Question 3

Gadget Corporation currently has no debt in its capital structure and it is considering issuing debt to buy back some of its equity. The following information is given for the company prior to and after restructuring with the possible state-contingent outcomes.

		States of nature		
		Recession	**Expected**	**Expansion**
With no leverage	EPS	2	6	10
	EBIT (KES)	800	2,400	4,000
With leverage	EPS	0	8	16
	EBIT (KES)	800	2,400	4,000

EPS = Earnings per share, EBIT = Earnings before interest and tax

a) In one diagram, plot the EPS-EBIT tradeoff for the With-Leverage case and With-No-Leverage case. **(4 marks)**

b) Explain why: **(4 marks)**
   (i) Account for the differences in the intercepts of the With-Leverage and With-No-Leverage line
   (ii) Explain the reason behind the differences in the slopes of the two lines

c) Derive the breakeven point EPS and EBI for the With- Leverage and With-No-Leverage cases **(5 marks)**

d) State the Modigliani Proposition I and Proposition II **(2 marks)**

Question 4

a) In January 2019, Jane bought 1,500 shares of Spur Inc. stock at $73 per share. She received total dividends of $1,500 during the year. Currently, Spur Inc. stock sells for $83.
   i. How much did Jane earn in capital gains? **(1 mark)**
   ii. What was her total dollar return? **(1 mark)**
   iii. What was her percentage return? **(1 mark)**

b) In 2015, Fernando invests $10 dollar in Exceed Company and the returns for 2015, 2016, and 2017 were 25 percent, -7 percent, and 12 percent. What was his holding period return at the end of 3 years? **(2 marks)**

c) A two-asset portfolio comprising assets X and Y has the following state-contingent returns with the respective probabilities.

Probability	**Return on x_i**	**Return on y_i**
0.6	25%	12%
0.3	15%	16%
0.1	9%	-4%

Compute:

(i) Expected value of x, $\epsilon(x)$ **(2 marks)**

(ii) Expected value of x, $\epsilon(y)$ **(2 marks)**

(iii) Variance of x, $Var(x)$ **(2 marks)**

(iv) Variance of y, $Var(y)$ **(2 marks)**

(v) Covariance of x and y, $cov(x, y)$ **(2 marks)**

Question 5

a) Define the following terms as used in the foreign exchange markets

i. Currency speculation **(1 mark)**

ii. Currency hedging **(1 mark)**

iii. Currency arbitrage **(1 mark)**

b) In the context of Kenya, briefly explain how the following market dynamics would affect the exchange rate between the Kenyan Shilling and the United States Dollar:

i) A rise in the interest on the U.S. Federal bonds relative to Kenya's treasury bonds **(2 marks)**

ii) Kenya hosting an international event such as the Africa Cup of Nations (AFCON) **(2 marks)**

iii) The United States of America's Embassy in Kenya issuing travel advisories to its citizens against visiting the Kenya's coastal strip (a major tourism destination) due to increased insecurity. **(2 marks)**

c) Jeanette wants to buy an irrigation equipment. She has got three brands from different countries. The Chevs model from the USA costs US$ 2,300, The Volks model from the United Kingdom costs €1,590, the Honds model from Japan costs ¥ 0.22 million, and Hyunds from model from Korea costs 2.2 million Korean won. Holding other factors constant, she only can buy one of the models.

The following exchange rates are given.

	Foreign currency per dollar	Foreign currency per euro
American dollar (US$)	1.0	1.3
European euro	0.8	1.0

(€)		
Japanese yen (¥)	106.0	135.9
Korean won (₩)	1120.9	1437.1

i) From the stated prices and exchange rates, which irrigation equipment model is cheapest when all prices are expressed in American dollars? **(2 marks)**

ii) Do relative prices change when expressed in European euros? Explain why this is the case. **(2 marks)**

iii) Which currency has to appreciate for the cheapest car to become more expensive? **(2 marks)**

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SOME FINANCIAL ECONOMICS FORMULAE

✓ Present Value of a Single Cash Flow	PV = $\frac{\boldsymbol{FV_n}}{\boldsymbol{(1+i)^n}}$
✓ Expected Portfolio Return	$(\hat{R}_P) = W_1X_1 + W_2X_2 + \cdots + W_nX_n \equiv \sum_{i=1}^{n} W_iX_i$
✓ Future value	$Future\ value = PV\ (1+r)^n$
✓ Future Value of an Annuity Due	$FVAND_n = PMT\left[\frac{(1+i)^n - 1}{i}\right](1+i)$
✓ Future Value of an Ordinary Annuity ($FVAN_n$)	$FVAN_n = PMT[\frac{(1+i)^n - 1}{i}]$
✓ Portfolio Standard Deviation	$\delta(portfolio) = \sqrt{X_A^2\delta_A^2 + 2X_AX_B\delta_{AB} + X_B^2\delta_B^2}$
✓ Present Value of Annuity Due	$PVAND_n = PMT\left[\frac{1-\frac{1}{(1+i)^n}}{i}\right](1+i)$
✓ Present Value of Ordinary Annuity	$PVAN_n = PMT\left[\frac{1-\frac{1}{(1+i)^n}}{i}\right]$
✓ Value of the Levered firm	$V_L = \frac{EBIT(1-T_C)}{r_0} + T_CB$
✓ Value of the Unlevered Firm	$V_u = \frac{EBIT(1-T_C)}{r_0}$
✓ CAPM	$Expected\ return = r_f + \beta(r_m - r_f)$ Where: $r_f = risk - free\ rate, \beta = beta, and\ r_m = return\ on\ the\ market$
✓ Earnings per share	$EPS = \frac{Net\ Income - Preferred\ Shares}{Number\ of\ Outstanding\ Ordinary\ Shares}$
✓ Weighted average cost of capital	$r_{\mathrm{WACC}} = \frac{B}{B+S} \times r_B + \frac{S}{B+S} \times r_S$
✓ Value of an Unlevered Firm	$V_U = \frac{EBIT \times (1-T_C)}{r_0}$
✓ Value of a levered firm	$V_L = \frac{EBIT \times (1-T_C)}{r_0} + \frac{T_Cr_BB}{r_B}$
✓ Bond price	$P = \sum_{t=1}^{T} \frac{C}{(1+y)^t} + \frac{F}{(1+y)^T}$
✓ Zero-coupon bond price	$P = \frac{F}{(1+y)^T}$
✓ Yield to maturity	$YTM = \frac{C + \frac{FV-PV}{t}}{\frac{FV+PV}{2}}$

✓ Yield to call	$YTC = \dfrac{C + \frac{Call\ Price - Present\ Value}{t}}{\frac{Call\ Price + Present\ Value}{2}}$