

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMINATIONS: APRIL 2013

AEC 402: PUBLIC FINANCE AND FISCAL POLICY

SECTION A

You **MUST** answer question 1 in this section. This question carries 25 marks.

Q1

Q1 Ochanda Limited is looking to take on a new investment. The company will evaluate two mutually exclusive projects whose details are given below. The company's cost of capital is **10%**.

	Project A (Millions) Kshs	Project B (Millions) Kshs
Initial costs	200	190
Cash flows		
Year 1	40	80
Year 2	50	60
Year 3	60	50
Year 4	60	40
Year 5	85	30

The company's beta is **2**, the risk-free rate of return is **3%** and the average return on an Appropriate weighted equity index is **6.5%**.

Required:

(a) (i) Calculate an appropriate discount rate for Ochanda Limited using the capital asset Pricing model. **(1 mark)**

(ii) Calculate the net present value of **both** projects. **(4 marks)**

(iii) Calculate the internal rate of return of **both** projects. **(6 marks)**

(iv) Discuss the result of the evaluations you have made of the two projects and advise the company which project should be undertaken and why. **(3 marks)**

(b) Outline the key assumptions which underpin the Capital Asset Pricing Model. **(6 marks)**

(c) Apart from NPV, name other valuation methods that can be used to evaluate these two projects and what are their decision criteria? **(5 marks)**

(Total 15 marks)

SECTION B: You MUST attempt three (3) questions in this section. This section carries 45 marks.

Q2. Income Statements and Statements of Financial Wananchi Limited are given below.

Income statement (Profit and loss): 2011 (Note: All sales are on credit)

	Kshs. (Millions)
Turnover	11.0
Cost of sales	<u>6.6</u>
Net profit	4.4
Interest	<u>1.0</u>
Profit before tax	3.4
Taxation	<u>1.0</u>
Profit after tax	2.4
Dividends	<u>0.4</u>
	<u>2.0</u>

Statement of Financial Position (Balance Sheet): 2011

	Kshs.(Millions)	
Kshs.(Millions)		
Non-current assets		63.1
Current assets		
Inventory	1.5	
Receivables	1.4	
Cash	<u>0.5</u>	
	3.4	
Current liabilities		
Overdraft	2.0	
Trade payables	<u>1.0</u>	
Net current assets		<u>0.4</u>
Capital employed		63.5
Bonds		<u>8.5</u>
		<u>55.0</u>
Ordinary shares		30.0
Reserves		<u>25.0</u>
		55.0

Required:

(a) Calculate **each** of the following ratios for Wananchi Limited:

- (i) Current ratio
- (ii) Quick asset (acid test) ratio
- (iii) Stock turnover
- (iv) Trade Receivables days
- (v) Trade Payables days

(5 marks)

(b) State what steps could be taken to improve the working capital position of Drake plc. Your answer should exclude the use of external borrowing.

(5 marks)

(c) The directors of Wananchi Limited are currently reviewing the capital structure policy and how such a policy can be implemented. Discuss **each** of the following issues when setting the new capital structure policy:

- (i) Miller and Modigliani's Proposition 1
- (ii) Miller and Modigliani Proposition 2

(5 marks)
(Total 15 marks)

Q3.

(a) Discuss why agency problems might occur within a large company listed on the Nairobi Stock Exchange and suggest how these agency problems might be resolved.
(8 marks)

(b) Evaluate the use of the following sources of debt finance in the context of a large company:

- (i) Debentures and Bonds **(2 marks)**
- (ii) Overdrafts **(2 marks)**
- (iii) Convertible Loan Stock **(3 marks)**

(Total 15 marks)

Q4.

Given below is the Option Pricing Model (OPM) derived by Black and Scholes in 1973 for predicting the market price of call options.

C	=	$SN(d_1) - Xe^{-r_F T}N(d_2)$
Where d_1	=	$\frac{\ln(S/X) + r_F T + \frac{1}{2}\sigma^2 T}{\sigma\sqrt{T}}$
d_2	=	$d_1 - \sqrt{T}$
C	=	Market price of the option
$N(d_1)$ and $N(d_2)$ normal variable	=	the cumulative probabilities for a unit normal variable
S	=	Underlying stock's price
X	=	The exercise price
T	=	Time to maturity in years
σ^2	=	The instantaneous variance
r_F	=	The risk-free rate
\ln	=	Natural logarithm

Required:

- a) State and briefly explain the relationship between a call option's price and the following determinants:
- 1) The underlying stock's price. **(2 marks)**
 - 2) The exercise price **(2 marks)**
 - 3) The time to maturity **(2 marks)**
 - 4) The risk-free rate. **(2 marks)**
- b) The following data relate to call options on two shares, A and B

	Calls	
	A	B
Months to expiration	3	9
Risk-free rate	10%	10%
Standard deviation of stock returns	40%	40%
Exercise price	Sh.55	Sh.55
Stock price	Sh.50	Sh.50

Required:

Using the Black-Scholes Option Pricing Model (OPM).

- 1) Calculate the price of call option A. **(5 marks)**
- 2) Of the two call options, which would you expect to have the higher price?
Why? (Do not compute). **(2 marks)**

(Total marks 15)

Q5. The following financial information is available about Greens & Beans plc, a gardening equipment manufacturer which is listed in the United Kingdom:

Number of ordinary shares 4 million

Ordinary share price (ex div basis) £2.64

Proposed payout ratio 70%

Previous year's dividend per share 18.60p

Forecast dividend growth rate 4%

Earnings per share 30.0p

Cost of equity 12%

Price/Earnings ratio for the sector 10

Required:

(a) Calculate the value of total equity of Greens & Beans plc using:

(i) Dividend valuation method based on constant dividend growth rate **(3 marks)**

(ii) Price earnings ratio method **(2 marks)**

(b) Discuss three weaknesses of the dividend valuation method **(3 marks)**

(c) Investment decisions in a company are affected by agency problems between management and shareholders. This in turn affects the company's objective of the maximization of shareholder wealth. Explain three ways through which managerial behavior can be optimized to encourage goal congruence between shareholders and managers. **(7 marks)**

(Total 15 marks)

END