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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**UNIVERSITY EXAMINATION, 2019/2020 ACADEMIC YEAR**  
**FOURTH YEAR, SECOND SEMESTER EXAMINATION**  
**FOR THE DEGREE OF BACHELOR OF SCIENCE**  
**(BUSINESS ADMINISTRATION)**

Date: 9<sup>th</sup> April, 2019  
Time: 11.00am – 1.00pm

**KFI 406 - INVESTMENT ANALYSIS 11**

**INSTRUCTIONS TO CANDIDATES**

**ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

- a) Discuss three disadvantages of using swaps to hedge against foreign exchange rate risks. (3 Marks)
- b) The management of Mojo Limited intends to replace its existing two year old milk scheming machine whose original cost was Shs. 500, 000. The machine is two years old and it has a current market value of Shs 350,000. The capital budgeting analyst believe that the machine has five more years of useful life. At the end of the five years the asset will have a zero salvage value. The net book value of the machine is Shs 400,000.
- The management is contemplating the purchase of a new machine to replace the old one. The new machine costs Shs 800,000 and installation cost is estimated at Shs 150,000. It has an estimated salvage value of Shs, 100,000 at the end of five year useful life. The new machine will have a greater technological capacity and therefore annual sales are expected to increase by Shs. 120,000. Operating efficiencies with the new machine will produce an expected saving of Shs. 130,000 a year. The company uses modified accelerated capital recovery depreciation method (MACR) of 23%, 17%, 20%, 21% and 19% from year one to year five respectively.
- The cost of capital is 12% and a 40% tax rate is applicable. In addition if the new machine is purchased, inventories will increase by Shs. 150,000 and payables by Shs. 50,000 during the life of the project.

**Required**

Compute the investments;

- i) Incremental initial outlay (5 Marks)
- ii) Incremental operating cash inflow (6 Marks)
- iii) The terminal cashflows (2 Marks)
- iv) Advice the management on whether to replace the machine. (4 Marks)

- c) Company ABC and XYZ have been offered the following rates per annum on Shs. 200 million five year loan:

Company	Fixed Rate (%)	Floating Rate
ABC LTD	5.0	Base Rate + 0.1%
XYZ LTD	6.4	Base Rate + 0.6%

Company ABC requires a floating rate loan, company XYZ requires a fixed rate loan.

**Required**

Design a swap that will net a bank acting as intermediary 0.1% per annum and be equally attractive to both the companies.

(10 Marks)

**QUESTION TWO (20 MARKS)**

- a) Distinguish between the following terms as used in options
- i) American and European Options (2 Marks)
  - ii) Call and Put Options (2 Marks)
- b) An asset manager anticipates the receipt of funds in 200 days, which he will use to buy a particular stock. The stock he has in mind is currently selling for Shs. 165 and will pay a Shs 5 dividend in 50 days and another Shs 5 dividend in 140 days. The risk free rate is 5%. The manager decides to commit to a future purchase of the stock by going long a forward contract on the stock.

**Required**

- i) At what price would the manager commit to purchase the stock on in 200 days through a forward contract? (5 Marks)
  - ii) Suppose the manager enters into a contract at the price you found in part (i). Now, 75 days later, the stock price is Shs. 130. Determine the value of the contract at this point. (4 Marks)
  - iii) It is now the expiration day, and the stock price is Shs. 135. Determine the value of the forward contract at this time. (4 Marks)
- c) A stock index currently stands at Shs 4,000. The risk free interest is 8% per annum with continuous compounding and the dividend yield on the index is 4% per annum. What should the futures price for a 4 – month contract be?

(3 Marks)

**QUESTION THREE (20 MARKS)**

- a) List and explain five factors that can influence the value of a call option. (5 Marks)
- b) You are provided with the following information

Stock Price	Shs. 100
Exercise Price	Shs. 95
Interest Rate	10%
Time to Expiration	3 months
Standard Deviation	50%

Using the Black – Scholes Option Pricing Model to value a call option with information provided above. (8 Marks)

- c) Use the binomial model to price a call option with the following features

Exercise Price	Shs. 6
Term to Expiry	2 months
Current Share Price	Shs. 6.50
Up Factor	1.04 per month
Down Factor	1/1.04 per month
Risk free interest rate	1% per month

Use two time periods, each of 1 month

(7 Marks)

#### **QUESTION FOUR (20 MARKS)**

- a) Briefly discuss factors that have contributed to the global growth of the derivatives market. (6 Marks)

- b) Madawa Chemicals Ltd. is in the process of forecasting its financial needs for the coming year ending 31 October 2018. The company attained a turnover of Sh.300 million for the current year ended 31 October 2018.

The following are the summarized financial statements of the company for the year ended 31 October 2017.

	<b>Income Statement Sh. 'million'</b>
Turnover	<u>300</u>
Profit before tax	54
Taxation	<u>18</u>
Profit after tax	36
Dividend	<u>9</u>
Retained profit	<u>27</u>

	<b>Statement of Financial Position</b>	
	<b>Sh. 'million'</b>	<b>Sh. 'million'</b>
Net Assets:		
Fixed assets (net)		190
Current assets	146	
Current liabilities	<u>103</u>	<u>43</u>
		<u>233</u>
Financed by:		
Issued ordinary shares		50
Reserves		<u>90</u>
		140
Medium and long-term debt		<u>93</u>
		<u>233</u>

From past experience, it has been disclosed that each additional Sh.1 of sales made by the company requires, on average, a total investment in fixed assets, stocks and debtors of Sh.1.50. The Sh.1 additional sales also results in the generation of automatic financing of 40 cents as various creditors spontaneously arise with the increase in sales.

The net profit margin after tax and the dividends pay-out ratio which apply for the year ended 31 October 2018 will also be relevant into the foreseeable future.

**Required:**

- i) The amount of external finance that will be needed during the year ending 31 October 2018 if sales are expected to increase by 15% in the year. (4 Marks)
- ii) The maximum expected sales growth that can be achieved in the year ending 31 October 2018 if only internally generated funds are used. (6 Marks)
- iii) Briefly comment upon the weaknesses of the method of forecasting used above. (4 Marks)

**QUESTION FIVE (20 MARKS)**

Bara Ltd. is contemplating a bid for the share capital of Pwani Ltd. with an intention of buying the whole company. The following data for the two companies have been provided.

	<b>Bara Ltd.</b>	<b>Pwani Ltd.</b>
Number of shares	3,000,000	8,000,000
Share price	Sh. 150	Sh. 30
Latest equity earnings	Sh. 675 million	Sh. 80 million

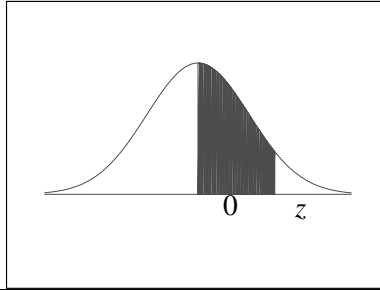
After acquisition, Bara Ltd. intends to sell a division of Pwani Ltd. which accounts for Sh.20 million annually in equity earnings. The division does not form part of the core business of the intended group. The division has a current market price of Sh. 50 million.

Bara Ltd.'s management believes that by introducing better management, earnings of Pwani Ltd. could be permanently increased by 25% although the price/earnings multiple will remain the same. To avoid duplication, some of Bara Ltd.'s own property could be disposed of at an estimated price of Sh. 130 million. Rationalization costs are estimated at Sh. 100 million, these comprise retrenchment and legal costs among others.

**Required:**

- i) Highlight the advantages of growth by acquisition. (6 Marks)
- ii) Calculate the effect on the current share price of each company, all other things being equal, of a two for ten share offer by Bara Ltd., assuming that Bara Ltd.'s estimates are in line with those of the market. (10 Marks)
- iii) Assume that Bara Ltd. is proposing to offer Pwani Ltd.'s shareholders the choice of a two for ten share exchange or a cash alternative. Giving reasons, advise Bara Ltd. whether the cash alternative should be more or less than the current value of the share exchange. (4 Marks)

# Standard Normal Distribution Table



$z$	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998