Strathmore
UNIVERSITY

STRATHMORE INSTITUTE OF MATHEMATICAL SCIENCES
BACHELOR OF BUSINESS SCIENCE IN ACTUARIAL SCIENCE
END OF SEMESTER EXAMINATION
BSA 2103 FINANCIAL ANALYSIS IN ACTUARIAL SCIENCE

DATE: 19th July 2018 Time: 2 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

QUESTION ONE (30 MARKS)

Here is the excerpt of the "Managing director's statement" from Tanzanian Brewery Limited (TBL) Annual Report for 2017 followed by corresponding B/S, P&L and Cashflow statements.

FY 2017 proved to be a stern test of our tenacity, strategy as well as our ability to adapt and survive amid the challenging market conditions. While we continued to maintain our market leadership, our overall Group performance was affected negatively by the challenging operating environment of the alcohol industry, along with other macroeconomic headwinds, more profound being:

A. *A prolonged period of severe drought affecting supply of local raw materials as well as impacting disposable income of majority (65%) of Tanzanians in agricultural sector.*
B. *The government's decision to impose a 5% excise duty increase on alcohol caused hiking up of alcohol prices, hence placing further pressure on consumer purchasing power and overall demand.*
C. *Government's blanket ban on plastic bags effective 1st March which translated into a total ban on spirit sachet packs, which account for 75% volume of our Wines and Spirits business.*

Overall the business faced a 5% decline in total volume, due to declines in our Beer business and Wines and Spirits business, by 5% and 4% respectively, weighed down by the burden of higher excise duties, prevalent economic challenges, negative growth in disposable income, and decrease in demand for discretionary products. However, despite the challenges, we managed to deliver performance improvement in Traditional African Beer business with a volume growth of 1.3%, mainly driven by the introduction of a new 500ml Chibuku pack at 700 Tshs price, offering home brewers and homebrew drinkers an affordable opportunity.
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All values TZS Millions.	2017	2016	2015	2014
Cash & Short Term Investments	**78,774**	**39,238**	**36,580**	**11,090**
Accounts Receivables, Gross	*125,096*	*150,318*	*100,265*	*70,696*
Bad Debt/Doubtful Accounts	*- 26,148*	*- 3,778*	*- 2,065*	*- 1,828*
Accounts Receivables, Net	*98,948*	*146,540*	*98,200*	*68,868*
Other Receivables	*20,959*	*20,181*	*55,371*	*12,413*
Total Accounts Receivable	**119,907**	**166,721**	**153,571**	**81,281**
Finished Goods	*26,022*	*26,356*	*25,501*	*53,562*
Work in Progress	*10,132*	*6,708*	*57,782*	*34,158*
Raw Materials	*93,539*	*98,958*	*42,523*	*68,609*
Progress Payments & Other	*- 4,382*	*- 5,142*	*- 3,547*	*- 4,961*
Inventories	**125,311**	**126,880**	**122,259**	**151,368**
Prepaid Expenses	**17,742**	**9,867**	**8,098**	**9,531**
Total Current Assets	**341,734**	**342,706**	**320,508**	**253,270**
Buildings	*64,584*	*64,087*	*66,420*	*53,696*
Machinery & Equipment	*323,956*	*317,979*	*336,842*	*302,973*
Construction in Progress	*67,148*	*44,020*	*24,890*	*41,118*
Other Property, Plant & Equipment	*82,902*	*80,891*	*75,207*	*76,883*
Property, Plant & Equipment - Net	**538,590**	**506,977**	**503,359**	**474,670**
Other Long-Term Investments	**88**	**88**	**88**	**88**
Intangible Assets	**49,503**	**49,165**	**49,086**	**48,981**
Total Fixed Assets	**588,181**	**556,230**	**552,533**	**523,739**
Total Assets	**929,915**	**898,936**	**873,041**	**777,009**
Short Term Debt	*1,953*	*24,690*	*55,427*	*51,862*
Current Portion of Long Term Debt	*741*	*971*	*750*	*2,625*
ST Debt & Current Portion LT Debt	2,694	25,661	56,177	54,487
Accounts Payable	117,062	75,289	66,013	51,934
Income Tax Payable	-	2,230	37,610	2,175
Dividends Payable	3,145	3,831	3,166	2,470
Other Current Liabilities	43,652	78,783	42,602	61,807
Total Current Liabilities	**166,553**	**185,794**	**205,568**	**172,873**
Long-Term Debt	241	529	1,500	2,250
Provision for Risks & Charges	1,691	4,200	-	829
Deferred Taxes	43,465	50,323	53,178	48,454
Long-Term Liabilities	**45,397**	**55,052**	**54,678**	**51,533**
Total Liabilities	**211,950**	**240,846**	**260,246**	**224,406**
Total Shareholders' Equity	709,878	646,072	599,138	542,958
Acumulated Minority Interests	8,087	12,018	13,657	9,645
Total Equity	**717,965**	**658,090**	**612,795**	**552,603**
Liabilities & Equity	**929,915**	**898,936**	**873,041**	**777,009**

All values TZS Millions.	2017	2016	2015	2014
Sales/Revenue	1,041,123	1,112,608	1,073,124	979,651
COGS excluding D&A	530,125	525,120	497,732	436,727
Depreciation & Amortization	63,491	49,294	47,010	40,386
Cost of Goods Sold incl. D&A	593,616	574,414	544,742	477,113
Gross Income	**447,507**	**538,194**	**528,382**	**502,538**
SG&A Expense	204,416	199,610	204,480	204,267
EBIT	**243,091**	**338,584**	**323,902**	**298,271**
Non Operating Income/Expense	- 7,063	- 1,918	- 8,887	- 1,262
Interest Expense	- 1,428	- 8,854	- 6,084	- 4,290
Pretax Income	**234,600**	**327,812**	**308,931**	**292,719**
Income Tax - Current Domestic	80,730	102,116	86,577	81,973
Income Tax - Deferred Domestic	- 7,570	- 3,285	5,799	7,039
Income Tax	73,160	98,831	92,376	89,012
Consolidated Net Income	**161,440**	**228,981**	**216,555**	**203,707**
Minority Interest Expense	- 4,014	6,073	9,119	7,257
Net Income	**165,454**	**222,908**	**207,436**	**196,450**

All values TZS Millions.	2017	2016	2015	2014
Net Income before Extraordinaries	234,600	327,812	308,931	292,719
Depreciation & Amortization	63,491	49,294	47,010	40,386
Other Funds	- 89,728	- 85,768	- 81,537	- 72,509
Funds from Operations	**208,363**	**291,338**	**274,404**	**260,596**
Receivables	46,910	- 20,449	- 59,280	- 10,707
Inventories	680	- 5,682	24,887	- 18,747
Accounts Payable	7,396	8,487	24,485	- 6,298
Changes in Working Capital	54,986	- 17,644	- 9,908	- 35,752
Net Operating Cash Flow	**263,349**	**273,694**	**264,496**	**224,844**
Capital Expenditures (Fixed Assets)	- 96,002	- 59,382	- 84,931	- 101,850
Capital Expenditures (Other Assets)	-	- 1,096	- 709	- 147
Sale of Fixed Assets & Businesses	494	1,248	122	211
Net Investing Cash Flow	**- 95,508**	**- 59,230**	**- 85,518**	**- 101,786**
Cash Dividends Paid - Total	- 103,911	- 176,292	- 146,768	- 133,685
Issuance/Reduction of Debt, Net	- 518	- 750	- 2,625	- 52,850
Change in Current Debt	-	- 750	-	-
Change in Long-Term Debt	- 518	-	- 2,625	- 52,850
Other Funds/Uses	-	- 7,701	- 4,941	- 8,377
Net Financing Cash Flow	**- 104,429**	**- 184,743**	**- 154,334**	**- 194,912**

QUESTION 1 (30 MARKS)

1. The table on page 6 contains TBL ratios (2017 – 2014) and in the left column the same ratios for EABL (2017). Calculate missing ratios (grey cells) for TBL 2017. **(Each ratio carries 0.5 mark – 10 in total)**

2. Answer following questions **(Each question carries 4 marks – 20 in total)**

   i. What happened with TBL's Current Ratio in 2017 comparing with the previous years? What are the two main drivers of the change?

   ii. Comment on the differences between EABL and TBL Cash Conversion Cycles. What could be the causes of these differences and what does it tell us about their competitive position in the market?

   iii. TBL's ROA is significantly higher than that of EABL. On the other hand, EABL's ROE is much higher than that of TBL. How do you explain this?

   iv. Recall from the Genghis Capital report that several years ago, EABL heavily invested on their supply side (by enhancing agricultural production of the most important crud materials) whereas TBL focused on development of distribution systems to reach the rural areas.

   Which two indicators (figures in the bellow table) testify about the results of these two strategies?

   v. All numbers referring to TBL presented here are in Tanzanian shillings. For EABL data we used EABL's Annual Report for 2017 that is in Kenyan shillings.

   What do you think, did we:
   (a) convert EABL's statements in Tanzanian shilling,
   (b) convert TBL's statements in Kenyan shillings,
   (c) neither – nor?

   Explain.

2017	EABL / TBL	2017	2016	2015	2014
9%	Revenue Growth		4%	10%	
44%	Gross Margin		48%	49%	51%
	EBITDA		387,878	370,912	338,657
	EBITDA Growth		5%	10%	
	EBITDA Margin		35%	35%	35%
	EBIT Growth		5%	9%	
19%	EBIT Margin		30%	30%	30%
-17%	Net Income Growth		7%	6%	
12%	Net Income Margin		20%	19%	20%
5.6	Leverage		1.37	1.42	
6.5	Avr. Rec t/o		6.9	9.1	
5.0	Avr. Inv t/o		4.2	3.6	
1.8	Avr. Pay t/o		7.4	8.4	
38	CCC		98	84	
-14%	Rec change		9%	89%	
-8%	Inv change	-1%	4%	-19%	
-5%	Pay change		14%	27%	
13%	Return On Assets		26%	27%	
78%	Return On Equity		36%	38%	
1.0	Current Ratio		1.8	1.6	1.5
0.7	Quick Ratio		1.2	1.0	0.6
20%	Net Op. CF / Sales	25%	25%	25%	23%
105%	Net Op. CF / EBIT	108%	81%	82%	75%

QUESTION 2 (20 MARKS)

1. Construct a monthly budget for April through June 2017 using the information below. What is the total cash (need) in June 2015 considering the annual interest of 12% payable monthly? **(15 Marks)**

All figures are in KES thousands:

- Wages payable monthly 400
- Principal payment on debt due in June 1,000
- Interest payment due in June 120
- Dividend payable in June 250
- Addition to accumulated depreciation in June 880

	Jan. 15	Feb.15	Mar. 15	42,095	42,125	42,156
Net Sales	1,200	1,000	900	700	600	1,000
Cash (20% sales)	240	200	180			
Receivables Beginning	1,920	960	800			
+ Receivables (30 D) 80%	960	800	720			
- Receivables Received	- 1,920	- 960	- 800			
Receivables End	960	800	720			
Cash Change	2,160	1,160	980			
Purchases	600	500	450	350	300	500
Cash Purchases	180	150	135	105	90	150
Payables Beginning	1,134	1,260	770	665	560	455
+ Payables (60 D) 40%	420	350	315	245	210	350
- Payables Paid	- 294	- 840	- 420	- 350	- 315	- 245
Payables End	1,260	770	665	560	455	560
Cash Change	- 54	- 640	- 240	- 210	- 195	- 45
Wages	400	400	400	400	400	400
Principal						
Interest	120	120	120	120	120	
Dividends						
Depreciation						
Cash Needs	- 520	- 520	- 520			
Cash Beginning	- 724	862	862			
Cash Change	1,586	-	220			
Cash End	862	862	1,082			
Cash Minimum Balance	500	500	500	500	500	500
Cash surplus/deficit	362	362	582			

2. Explain how depreciation is accounted for in the cash budget. **(2 Marks)**

3. Working capital (WC) is defined as $WC = CA - CL$. What is the alternative explanation for working capital and when could a negative WC be good for a business? **(3 Marks)**

QUESTION 3: (20 MARKS)

You are provided with the following information relating to XZY Ltd for two years.

Year	2017	2016
Net income	210,476	185,755
Sales	4,818,808	3,617,816
Debt	314,552	198,261
Assets	4,136,792	3,501,548
Profit margin		
Asset turnover		
Equity		
Leverage		
ROE		

Required:

1. Compute the return on equity (ROE) for the two years using DuPont Analysis.
   ROE = Profit Margin * Asset Turnover * Leverage **(3 marks)**

2. Briefly discuss the profitability, efficiency and leverage of XYZ Ltd and hence the reason for the observed movement in ROE **(6 marks)**

3. Cash and profit are important to any business. However, it's often said that "Cash is king." In the session we added: "But not any cash!" Explain what does it mean. **(3 marks)**

4. What is the difference between **cost leadership** and **differentiation** in strategy? **(3 marks)**

5. During the sessions we discussed that there are "only" 3 types of business transactions. State what they are by giving an example for each type. **(5 Marks)**

QUESTION 4 (20 MARKS)

ABC Ltd is a developer, manufacturer, and marketer of medical diagnostic products. Below, are selected financial data for the company for the period 2013 to 2017.

	2013	2014	2015	2016	2017
Profit margin	11%	10%	13%	14%	17%
Retention ratio	91%	92%	93%	92%	87%
Asset turnover	0.66	0.64	0.80	0.89	0.86
Assets (end of year, KES millions)	8.30	10.27	13.13	19.46	28.35
Equity (end of year, KES millions)	7.29	9.09	10.79	15.29	22.03
ROA	12%	11%	9%	7%	6%
ROE	14%	12%	12%	9%	8%
Leverage	1.14	1.13	1.22	1.27	1.29
Growth rate in sales (%)	26%	19%	60%	65%	41%
Assets to equity					
Sustainable growth rate (g*)					

***Note**: Assets to equity ratio is computed using equity at beginning of period*

1. Calculate ABC's annual sustainable growth rate for the years 2013-2017. **(8 marks)**
2. Comparing ABC's sustainable growth rate with its actual growth rate in sales, what growth management problems did ABC Ltd. face over this period? **(2 marks)**
3. How can the company cope with these problems? **(4 marks)**
4. What is the danger if actual growth is below sustainable growth rate? **(2 marks)**
5. How can a company cope with this? **(4 marks)**

QUESTION 5: (20 MARKS)

1. Explain the term cash conversion cycle (CCC) and how it is calculated **(4 marks)**

2. Given the information below, calculate the required figures at the end of each year. Assume 365 days in a year. **(8 marks)**

KES in millions	2017	2016
Net Sales	782	694
Purchases	410	390
Cost of goods sold	502	450
Depreciation	61	51
Net Income	142	130
Finished goods inventory	29	39
Accounts receivable	87	57
Accounts payable	44	39
Net fixed assets	482	404
Year-end cash balance	135	86
DIO		
DSO		
DPO		
CCC		

3. Briefly explain how the working capital requirements of a stable business differ from those of a growing business. **(3 Marks)**

4. A business generates sales of KES 1,000 monthly with a margin of KES 300. The clients pay only in 90 days. How much does the business need to finance working capital requirements if:

    a. If sales are stable? **(2 Marks)**

    b. If sales increase by KES 1000 every month? **(3 Marks)**