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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY  
UNIVERSITY EXAMINATION, 2016/2017 ACADEMIC YEAR  
BRIDGING IN MATHEMATICS**

Date:  
Time: 9.00am –

**KMA 0104 - BUSINESS MATHEMATICS**

**INSTRUCTIONS TO CANDIDATES**

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

**QUESTION ONE (30 MARKS)**

- a) Define the following terms;
- i) Annuity
  - ii) Taxable income
  - iii) Discount
- (3 Marks)
- b) At what rate is simple interest charged on Sh.40,000 if the amount received after 3 years is Sh.54,400?
- (4 Marks)
- c) A house is valued at Sh.800, 000 and is expected to appreciate at a rate of 15% each year. Find its value after 3 years.
- (4 Marks)
- d) Njeri bought 1200 mangoes for her business at a price of Sh.50 for every 60 mangoes. She discovered that 20 mangoes were rotten and that her family members had consumed 30 mangoes. She sold each of the remaining mangoes at Sh.1.25.
- i) Calculate her profit
  - ii) Calculate her profit mark-up and margin
- (5 Marks)
- e) If Sh.7, 500 is invested for 4 years using compound interest, at what rate will the money amount to Sh.9116.30?
- (5 Marks)
- f) A loaf of bread weighing 500gms is sold at Sh.23 including 18% VAT. What should be the price of a loaf weighing 400gms fixed at 16%.
- (5 Marks)

**QUESTION TWO (20 MARKS)**

- a) Find the selling price for each of the cases given below hence calculate the values of w,x,y and z.

	Cost price	Selling price	Mark-up (%)	Margin (%)
a.	1,400		30	W
b.	5,000		x	25
c.	9,000		33 1/3	Y
d.	4,000		z	20

(10 Marks)

- b) A producer sells some items to a wholesaler at Sh.10,000. The wholesaler then sells the items to retailer at Sh.20, 000. The retailer then sells each of the 1,000 items to consumers at Sh.25. the government introduces VAT at the rate of 15% on these items. How much should the trader sell the items to make the same profit as before the introduction of the tax?

(10 Marks)

**QUESTION THREE (20 MARKS)**

- a) Wanjiru deposited Sh. 40,000 in a savings account for 3 years at a simple interest rate of 12.5% p.a. how much money would she have lost if she had deposited the same amount for 2 years in a fixed deposit account where the money is compounded at 16% p.a?

(6 Marks)

- b) Calculate the compound interest using the step method for Sh. 50,000 invested for 2 years at 15% half yearly.

(5 Marks)

- c) After how long will Sh. 50,000 amount to Sh. 75,000 under simple interest at a rate of 10% half yearly?

(4 Marks)

- d) Sh. 217,500 was paid back after 3 years for money borrowed at 15% simple interest p.a. how much money was borrowed?

(5 Marks)

**QUESTION FOUR (20 MARKS)**

- a) Mary sells goods on commission basis for a Nairobi firm. She is also given a basic salary of Sh.5, 000. Commission is paid as follows;

On the 1<sup>st</sup> Sh.50,000 worth of sales : nothing  
On the next Sh.100,000 worth of sales :4%  
On the balance of sales : 5%

What is his monthly income on a month that she sells goods worth;

- i) Sh.80,000

(4 Marks)

- ii) Sh.350,000

(6 Marks)

- b) An estate agent charges for the sale of property 5% commission for the 1<sup>st</sup> Sh.500,000 and 3% on the remainder. The owner of a house received Sh.863,000 from the agent after commission had been deducted. How much did the buyer pay for the house?

(10 Marks)

**QUESTION FIVE (20 MARKS)**

Given the following individual tax table

Income SLAB K£ p.a.	Rate	
	Sh per £	%
1-1980	2	10
1981-3960	3	15
3961-5940	5	25
5941-7920	7	35
7921-9900	9	45
9901 and over	10	50

- a) Calculate the amount of monthly income tax that Mark would pay if he earns K£ 8,000 p.a.  
(10 Marks)
- b) What would be his earning per month if he is married pays an insurance premium of Ksh.5, 000 per year and he is given the appropriate relief?

(10 Marks)