

**NATIONAL UNIVERSITY OF LESOTHO
INSTITUTE OF EXTRA MURAL STUDIES
DEPARTMENT OF BUSINESS AND MANAGEMENT DEVELOPMENT
BACHELOR OF ARTS IN BUSINESS ENTREPRENEURSHIP
BBE1303- BUSINESS CALCULATIONS I**

JANUARY 2023

TIME: 3 HOURS

MARKS: 100

**INSTRUCTIONS: ANSWER ANY FIVE QUESTIONS.
SHOW ALL THE WORKINGS**

QUESTION 1

- a) Give a full definition of an integer. **(2 marks)**
- b) List the numbers in the set $\{ 45, -18, 0, \sqrt{5}, -12, \pi, 2.123123123\dots, 5.18231594562132\dots, \dots, 7, (4/5) \}$ that are ;
Whole numbers
Integers
Rational numbers
Irrational numbers
Real numbers **(5 marks)**
- c) List 3 properties of real numbers under both addition and multiplication and give an example on each property. **(6 marks)**
- d) Write each of the following in term of its prime factors.
i) 140
ii) 75 **(5 marks)**
- e) Hence from d) above find the Greatest Common Factor of 140 and 75 **(2 marks)**

QUESTION 2

- a) Evaluate and simplify the following

i) $\frac{39a^5b^0}{3a^4b^{-5}}$ **(2 marks)**

ii. $(2x^{-2}y^{-3})^3$ **(2 marks)**

iii) $s^{-2} \times 4s^7$ **(2 marks)**

- b) Write the following in standard form of the exponents

i) 21, 3600 **(3 marks)**

ii) 0.000005 **(3 marks)**

iii) $\frac{1}{2}$ **(3 marks)**

- c) Convert the following decimal 1.69696969.....into a fraction. **(5 marks)**

QUESTION 3

- a) Is the following transaction a loss or a profit? Find the profit or loss percentage.
"A numeracy skills book was bought for R250 and sold for R326". **(5 marks)**
- b) Lim (Ltd) Pty purchased a laptop for M 8,500.00 which they then mark up at 28% profit. The laptop was later sold at a discount of 15% on the marked price.

- i) Find the selling price. **(5 marks)**
- ii) Find the discounted price. **(5 marks)**
- c) Pule earns R130, 000 annually and spends 12% of his annual salary on housing loan. How much does he spend on housing loan? **(5 marks)**

QUESTION 4

- a) Mr Mohato deposits M6, 500.89 in a fixed deposit account with NRB for 7 years at a simple interest of 12% p.a. How much will Mr. Mohato receive upon maturity? **(5 marks)**
- b) How much must you deposit today to withdraw M5, 600.00 in 4 years, supposing you can earn 15 percent interest, compounded annually? **(5 marks)**
- c) Thabo bought himself a Q7 Audi on hire purchase. He paid a deposit of M 350,000.00, and he will be paying monthly instalments of M 13,500.00 over a period of five years. Find out how much more he is going to pay if the cash price of car was M 1,000,000.00. **(5 marks)**
- d) A study table is selling for M1, 040.00 at a store excluding VAT. If the VAT is 15% calculate
- i) The VAT amount **(2 marks)**
- ii) The amount a customer pays if she buys the study table. **(3 marks)**

QUESTION 5

- a) Differentiate between net salary and gross salary **(4 marks)**
- b) Ms Limpho had graduated with a Diploma in Business Management at IEMS and landed a Business Manager Position at World Bank based in Ghana. The salary package that she will get is M350, 000.00 per year. The policy of Ghana on income tax is that M 36,000.00 (annual) is tax free and the taxable annual income is taxed at 12.5%.
- i) Her annual tax. **(4 marks)**
- ii) Her monthly take home after tax deduction **(5 marks)**
- c) The annual Lesotho PAYE structure in 2016 was presented as follows:
- Tax credit M6,732
 - $\leq M33,660$ free
 - Between M33,660 and M56,964.00 taxed at 20%
 - $>M56,964.00$ taxed at 30%

Using the above PAYE structure workout the monthly take home salary after deduction of an employee who earns

i) M2, 700 per month. **(2 marks)**

ii) M45,000 per year **(5 marks)**

QUESTION 6

Using one of the Mathematical progressions:

a) Given the following information for the Arithmetic Progression; $a_1 = -8, d = -5$

i) write down the n th term formula **(5 marks)**

ii) Generate the first five terms of the sequence **(5 marks)**

b) Given the following information for the Geometric Progression; $a_1 = -3, r = -2$

iii) write down the n th term formula **(5 marks)**

iv) Generate the first five terms of the sequence **(5 marks)**