NURTURING INNOVATORS

RIARA SCHOOL OF BUSINESS

MAY – AUGUST 2023 TRIMESTER

EXAMINATION FOR DIPLOMA IN BUSINESS ADMINISTRATION

EVENING PROGRAMME

RCM 003: BASICS OF BUSINESS MATHEMATICS

DATE: 11TH AUGUST 2023 **TIME: 2 HOURS**

GENERAL INSTRUCTIONS:

Students are NOT permitted to write on the examination paper during reading time.

This is a closed book examination. Text book/Reference books/notes are not permitted.

SPECIAL INSTRUCTIONS:

1. Write your REGISTRATION NO. Clearly on the answer booklet(s).
2. Answer Question One and ANY other TWO questions.
3. Questions in all sections should be answered in answer booklet(s).
4. Marks allocated to each question are shown at the end of the question.
5. PLEASE start the answer to EACH question on a NEW PAGE.
6. For the questions, write the number of the question on the answer booklet(s) in the order you answered them.
7. Write your answers in paragraph form unless stated otherwise.
8. Keep your phone(s) SWITCHED OFF at the front of the examination room.
9. Keep ALL bags and caps at the front of the examination room and do not refer to any unauthorized material before or during the course of the examination.
10. You are only allowed to leave the examination room 30minutes to the end of the Examination.

SECTION A

QUESTION ONE: COMPULSORY (30 MARKS)

a) Simplify: **(4 Marks)**

i). $x(x + 2) - (x - 4)$

ii). $a(b + c) - ac$

b) Factorize **(4 Marks)**

i). $12x - 18y$

ii). $x^2 - 2xy + 3xz$

c) Solve the equation $\frac{1}{2}(x + 6) = x + \frac{1}{3}(2x - 5)$ **(6 Marks)**

d) The length, d m, of a rectangular field is 40 m greater than the width. The perimeter of the field is 400 m.

i). Write this information in the form of an equation for d. **(6 Marks)**

ii). Solve the equation and so find the area of the field. **(2 Marks)**

e) Make x the subject in the formula $v = \omega\sqrt{a^2 - x^2}$ **(8 Marks)**

SECTION B (ANSWER ANY 2 QUESTIONS)

QUESTION TWO

a) Factorise the following quadratic equations

i). $x^2 - 2x - 24$ **(3 Marks)**

ii). $x^2 - 20x + 100$ **(3 Marks)**

b) Solve the following quadratic equations.

i). $x^2 - 40x - 6000 = 0$ **(4 Marks)**

ii). $x^4 - 13x2 + 36 = 0$ **(4 Marks)**

c) The shortest side AB of a right-angled triangle is x cm long. The side BC is 1 cm longer than AB and the hypotenuse, AC, is 29 cm long. Form an equation for x and solve it to find the lengths of the three sides of the triangle. **(6 Marks)**

QUESTION THREE

a) Explain the difference between simple interest and compound interest. **(4 Marks)**

b) Phillips Beauty Spa is replacing one of its workstations. The interest on a loan secured by the spa was $93.50. The money was borrowed at 5.5% for 2 years. Find the principal. **(4 Marks)**

c) Find the future value and compound interest on a $6000 investment at 10% compounded semiannually for 6 years. **(6 Marks)**

d) An air purifier sells for $150. If there is a 40% markup on the selling price, find the cost and the amount of markup. **(6 Marks)**

QUESTION FOUR

a) A retailer sells his articles at 20% profit. If he adds Kshs 16 more to the selling price of the item then the retailer has a profit of 30%. Find the purchase price of the article. **(8 Marks)**

b) Distinguish statistical terms statistic and a parameter. **(4 Marks)**

c) AIDS data indicating the number of months a patient with AIDS lives after taking a new antibody drug are as follows (smallest to largest): 3, 4, 8, 8, 10, 11, 12, 13, 14, 15, 15, 16, 16, 17, 17, 18, 21, 22, 22, 24, 24, 25, 26, 26, 27, 27, 29, 29, 31, 32, 33, 33, 34, 34, 35, 37, 40, 44, 44, 47. Calculate the mean and the median. **(8 Marks)**

END