1st SEM. 2016

UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BSc. in Agricultural Economics and Agribusiness
Management Year I
BSc. in Agricultural Education Year I
BSc. in Agronomy Year I
BSc. in Animal Science Year I
BSc. in Food Science, Nutrition and Technology Year I
BSc. in consumer science Year I
BSc. in Consumer sciences Education Year I
BSc. in Horticulture Year I
BSc. in Agricultural & bios stems Engineering Year I
BSc. in Textiles Apparel Design and Management Year I

COURSE CODE: AEM 101

TITLE OF PAPER: MATHEMATICS

TIME ALLOWED: 2:00 HOURS

INSTRUCTION: 1. ANSWER ALL QUESTIONS

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THE CHIEF INVIGILATOR**

Question 1. (25 points)

    1.1 Calculate the selling price when:

        a) Cost price is E5.00 and profit per cent is 20%.

        b) Cost price is E30.00 and profit per cent is 35%.   (9 points)

    1.2 . Factorize $9a^2 - b^2$ (8 points)

    1.3 Simplify $\frac{x^2-x}{x-1}$ (8 points)

Question 2 (25 points)

    2.1. A boy is x years old now. How old was he 10 years age?   (8 points)

    2.2. Express $\frac{2-p}{2p} - \frac{3-2p}{3p} - \frac{p+2}{6p}$ as a single fraction in the lowest terms.   (9 points)

    2.3 Solve the equation $4x^2-3x-2=0$ (8 points)

Question 3 (25 points)

    3.1 Find the solution set of system of simultaneous equation.   (8 points)

        $x^2 + y^2 = 34$

        $x + 2y = 13$

    3.2. How long will it take the earth's population to double if it continuous to grow at the rate of 2 percent per year compounded continuously?   (7 points)

    3.3 Find the solution of exponential equation   (5 points)

        $x^{-3} = 1/8$

    3.4 Find the solution set of logarithmic equation.   (5 points)

        $\log_2^{(3x-1)} + \log_2^{x} = 4$

Question 4 (25 points)

4.1 An agricultural engineer stands 100kms from the base of a tower on which an aerial stands. She measures the angles of elevation to the top and bottom of the aerial as 62^0 and 60^0 .Find the height of aerial?   (7 points)

4.2 Find the maximum and minimum values of $y = x^3 - 3x^2 + 4$ (8 points)

4.3 The acceleration of a moving body at the end of t seconds from the commencement of motion is (9-t) meters per second. Find the velocity and distance travelled at the end of 2 seconds if the initial velocity is 5 metres per second.   (5 points)

4.4. Evaluate $\int_1^2 x^3\, dx$ (5 points)

END OF PAPER