

1st SEM. 2019 / 2020



Page 1 of 3

UNIVERSITY OF ESWATINI

RE- SIT EXAMINATION PAPER

PROGRAMME: BSc. in Agricultural & Biosystems Engineering Year I
BSc. in Agricultural Economics and Agribusiness
Management Year I
BSc. in Agricultural Education Year I
BSc. in Agricultural Extension Year I
BSc. in Agronomy Year I
BSc. in Animal Science Dairy 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 Textiles Apparel Design and Management Year I

COURSE CODE: AEM 101

TITLE OF PAPER: MATHEMATICS

TIME ALLOWED: 2:00 HOURS

INSTRUCTION: ANSWER ALL QUESTIONS

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE
CHIEF INVIGILATOR

1st SEM. 2019 / 2020

Page 2 of 3

Question I. (25 points)

- 1.1 A wholesaler sells an article to a retailer for E4400 which represents a profit to the wholesaler of 22% .The retailer then sells the article to a customer at a profit of 13%.Calculate the total percentage profit based on the price the wholesaler paid?
(13 points)

- 1.2 A shopkeeper marks an article to allow himself 15% profit on the cost price. If he sells it For E 700 how much was the cost price?
(12 points)

Question 2. (25 points)

- 2.1 Factorize completely

(8 points)

$$(9 - x)^2 - 36y^2$$

- 2.2 Simplify

(8 points)

$$\frac{3}{x+1} + \frac{2x-1}{(x+1)(x+2)} - \frac{2}{x+2}$$

- 2.3 Find the solution set of system of simultaneous equation.

(9 points)

$$3x + 2y = 23$$

$$xy = 20$$

1st SEM. 2019 / 2020

Page 3 of 3

Question 3(25 points)

3.1 Find the solution of exponential equation

$$(3)^{-x} = 27^{x+1}$$

(8 points)

3.2. Find the solution set of logarithmic equation.

$$\log_3^{(x+2)} + \log_3^{(x-2)} = 3$$

(8 points)

3.3.If $\cos A = \frac{12}{13}$ find the values of $\sin A$ and $\tan A$ without calculator? (9 points)Question 4 (25 points)

4.1. Differentiate the following with respect to x

a) $y = 4x^4 + 6x^2 - 5x + 6$

b) $y = \frac{4}{x^3} + 6x - 8$

(9 points)

4.2 A man 1.9 m tall observes the angle of elevation of a tree to be 20° . If he is standing 20 m from the tree, find the height of the tree.

(8 points)

4.3 If $\frac{dy}{dx} = 2 + 3x$ and $y = 12$ when $x = 2$, find y in terms of x .

(8 points)

END OF PAPER