UNIVERSITY OF ESWATINI

FINAL EXAMINATION PAPER 2020/21

TITLE OF PAPER: POPULATION DYNAMICS

COURSE CODE: BIO620

TIME ALLOWED: THREE HOURS

INSTRUCTIONS: 1. ANSWER ALL THREE (3) QUESTIONS.
2. EACH QUESTION CARRIES 30 MARKS.
3. ILLUSTRATE YOUR ANSWERS WITH LARGE AND CLEARLY LABELLED DIAGRAMS WHERE APPROPRIATE.

SPECIAL REQUIREMENTS: NONE

THIS PAPER IS NOT TO BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATORS

QUESTION 1

What are density-dependence and density-independence? And how can they be incorporated in population growth models.

[30 marks]

QUESTION 2

How can intra-specific competition be introduced into a population growth model?

[30 marks]

QUESTION 3

Discuss in detail how SEIR models operate for predicting disease outbreaks.

[30 marks]