UNIVERSITY OF ESWATINI

MAIN EXAMINATION PAPER 2018/2019

TITLE OF PAPER	:	POPULATION ESTIMATES AND PROJECTIONS
COURSE CODE	:	DEM 311
TIME ALLOWED	:	TWO (2) HOURS
INSTRUCTIONS	:	ANSWER ALL QUESTIONS
REQUIREMENTS	:	SCIENTIFIC CALCULATOR

1. TRUE OR FALSE [20 marks]

a. Population projections having more internal validity are less likely to have a lower degree of external validity

b. Forecasts can be made for the past

c. Projections may depart from real experience or reality

d. Projections are predictions

e. Logistic curve growth assumes that the population have unlimited resources, and thus, will continue to grow at the same rate indefinitely

f. Long term projections are used for planning for educational and medical facilities and services as well as housing needs.

g. All forecasts are projections but not all projections are forecasts

h. Mathematical methods are usually based on interpolation of past trends into the future

i. The aggregation method takes national population projections and partitions it into its subnational populations

j. The reliability of projections increases with increasing time span.

2.

a. The population of Swaziland was given as 1,018,449 in 2007 and 1,093,238 in 2017. What was the estimated population of the country in 2009, 2012 and 2015. [15 marks]

b. In 2007, the population of Swaziland was projected to increase to about 1.3 million. After the counts from the 2017 population census however showed that the population of the country was only about 1.1 million. Evaluate the reliability of the projected population using the proportional error formula? [5 marks]

c. How long will it take and in what year will Swaziland double its current 2017 population size of about 1.1 million if the population is growing exponentially at 1.2% [5 marks]

d. Using the exponential growth model and the information provided in question (2c) above., what would be the population of the country in 2027 if the population in 2017 was about 1,093,287. [5 marks]

3.

a. How would you assess the reliability of population projection? [8 marks]

b. Using the multiregional projection model and the information provided in the table below, what would be the sub-national population of Swaziland by regions. [12 marks]

ORIGIN	Hhohho	Manzini	Lubombo	Shiselweni	Total
Hhohho	0.9661	0.0122	0.0095	0.0122	1.0000
Manzini	0.0186	0.9539	0.0125	0.0150	1.0000
Lubombo	0.0597	0.1102	0.8025	0.0275	1.0000
Shiselweni	0.0404	0.0819	0.0340	0.8437	1.0000
			Population in 2007		
	262,592	*283,897*	*242,517*	*229,443*	

4. Using the information provided in the Table below, project the sub-national population for the years 2014, 2019, and 2024 for the sub-regions. [30 marks]

	2002	**2007**
Manzini	323,960	353,960
Hhohho	291719	348,997
Shiselweni	181146	203,376
Lubombo	90573	201,191
Total	889400	1109531