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MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS
MAIN EXAMINATIONS

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR MASTER IN NATURAL RESOURCE MANAGEMENT

COURSE CODE: SNR 824

COURSE TITLE: QUANTITATIVE ECOLOGY AND MODELLING

DATE: WEDNESDAY, 27TH APRIL 2022   TIME: 9:00 – 12:00 P.M.

INSTRUCTIONS TO CANDIDATES

Answer ANY FOUR questions. ALL questions carry equal marks.

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

1. Describe the various types of environmental models and their uses (15 marks)

2. With the aid of a specific example describe how pollution models work including their assumptions. (15 marks)

3. Assume that you want to establish whether there is a relationship between shoe size, height and weight of a group of students in a class. Highlight the steps you would undertake to achieve this. (15 marks)

4. Describe the various population dynamics models and their assumptions. Of what importance are the models to a natural resource manager? (15 marks)

5. You are a public health researcher interested in social factors that influence heart disease. You survey 500 towns and gather data on the percentage of people in each town who smoke, the percentage of people in each town who bike to work, those who exercise and the percentage of people in each town who have heart disease.

   a. List your dependent and independent variables (2 marks)

   b. Which kind of multivariate analysis would you employ to your study. Justify your answer (13 marks)

6. You are interested in employing a systematic method for collecting a consistent, reproducible, and reliable sample of the aquatic biological community in a water body in addition to human activities in the riparian area. Describe in details the steps you will undertake including the sampling procedures. How will you analyze the collected data? (15 marks)