**CHUKA**                                                                **UNIVERSITY**

## UNIVERSITY EXAMINATIONS

### RESIT/SPECIAL EXAMINATION

## EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN WILDLIFE ENTERPRISE AND MANAGEMENT

**WIEM 311: WILDLIFE POPULATION DYNAMICS**

**STREAMS:  BSC (WIEM) Y3S1**                                    **TIME: 2 HOURS**

**DAY/DATE: MONDAY 01/11/2021**                          **11.30 A.M – 1.30 P.M.**

**INSTRUCTIONS:**
- Answer all questions in section **A** and any other two in section **B**

- Do not write on the question paper

**SECTION A (30 marks)**

1. Enumerate six factors that influence growth in wildlife populations       **(6 marks)**

2. Distinguish between

    a) Demographic and Environmental stochasticity                 **(2 marks)**

    b) Niche shift and character displacement                          **(2 marks)**

    c) Convergent and divergent oscillations                            **(2 marks)**

3. Briefly explain the reasons for stable predator-prey relationships in nature  **(6 marks)**

4. Briefly elaborate on the assumptions of the exponential growth model      **(6 marks)**

5. Briefly discuss the different distribution patterns observed in wildlife populations

                                                                                                     **(6 marks)**

**SECTION B: 40 MARKS**

6.  a) Discuss the various types of models **(12 marks)**

    b) Describe the basis on which models are categorized **(8 marks)**


7.  Discuss the importance of understanding source-sink dynamics in managing wildlife populations **(20 marks)**

8.  Discrete model assumes that the multiplication rate ($R_0$) in population growth depends on population density in a linear manner and is described by the formula $R_0 = 1.0 - B(N - Neq)$ Given that **Neq = 100** and $N_0 = 10$

    a)  Describe the kind of population growth observed up to the 5th generation when **B = 0.013, B = 0.023,** and **B = 0.033** **(15 marks)**

    b)  Plot the population densities against generation time from the results obtained in (a) above **(5 marks)**

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