

NARE 111

CHUKA



UNIVERSITY

**SUPPLEMENTARY / SPECIAL EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE  
DEGREE IN NATURAL RESOURCES MANAGEMENT**

**NARE 111: INVERTEBRATE BIOLOGY**

**STREAMS: BSC. NARE (Y1S2)**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 16/11/2020**

**2.30 P.M - 4.30 P.M.**

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**INSTRUCTIONS:**

1. Answer **All** questions in **SECTION A** and **Any Two** in **SECTION B**
2. Do not write anything on the question paper

**SECTION A (30 MARKS)**

1. Write short notes on the following terms (3 Marks)
  - a) Derived characteristics
  - b) Classification
  - c) Dioecious
2. Briefly describe the two types of metamorphosis exhibited by insects (4 Marks)
3. Outline five evolutionary importance of flight in the class insect (5 Marks)
4. Define metameric segmentation and explain its importance in invertebrates (4 Marks)
5. Outline the characteristics differentiating protozoans from other invertebrates (5 Marks)
6. Using examples briefly describe the two kinds of symmetry exhibited by invertebrates (4 Marks)
7. Briefly explain the evolutionary importance of cephalization in invertebrates (5 Marks)

**SECTION B (40 Marks)**

8. Discuss the ecological and economic importance of invertebrates (20 Marks)
9. Discuss the distinguishing characteristics of at least two phyla in the invertebrates group (20 marks)
10. Discuss the characteristics enabling insects to be a successful group of organisms (20 Marks)

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