

**ZOOL 331**



**KISII UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF  
BACHELOR OF EDUCATION SCIENCE**

**SECOND SEMESTER 2021/2022**

**(FEBRUARY-JUNE, 2022)**

**ZOOL 331: DEVELOPMENTAL BIOLOGY**

**STREAM: Y3 S2**

**TIME: 2 HOURS**

**DAY: FRIDAY, 9:00 AM – 11:00 AM**

**DATE: 20/05/2022**

**INSTRUCTIONS:**

- 1. Do not write anything on this question paper.**
- 2. Answer all questions in section A and any TWO in section B.**

**SECTION A (40 Marks)**

Answer ALL questions in this section

1. Justify the significance of developmental biology in medicine.  
(7 marks)
2. Briefly explain the process of vitellogenesis. (7 marks)
3. Defend the criteria for Choosing a model organism for research.  
(6 marks)
4. Assess the mechanisms underlying translocation and capacitation in mammalian fertilization. (5marks)
5. Compare and contrast the use of frog *Xenopus laevis* as a model organism in biology. (7 marks)

6. Examine Hans Driesch's "Regulative" development theory. (4 marks)
7. Evaluate histological and physiological events that account for the mechanism of regeneration. (4 marks)

**SECTION B (30 Marks)**

Answer any TWO questions from this section

8. Evaluate:
  - a) the morphogenetic movements in gastrulation that account for gastrulation. (5 marks)
  - b) progressive or regressive metamorphic changes in amphibians. (10 marks)
9. Discuss the mechanism of hormonal regulation of metamorphosis. (15 marks)
10. Discuss types of Regeneration based on Cellular movements. (15 marks)