



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATION**

**2017/2018 ACADEMIC YEAR**

**SCHOOL OF SCIENCE AND INFORMATION SCIENCES**

**THIRD YEAR FIRST SEMESTER EXAMINATIONS**

**FOR**

**THE DEGREE OF BACHELOR OF SCIENCE & BACHELOR OF  
EDUCATION (SCIENCE)**

**COURSE CODE : ZOO 310**

**COURSE TITLE : DEVELOPMENTAL BIOLOGY**

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**DATE: 16<sup>TH</sup> APRIL 2018**

**TIME: 0830 - 1030AM**

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## **INSTRUCTIONS**

- (a) Answer **ALL** questions in **Section A** and **ANY TWO** in **section B**
- (b) Illustrate your answer with well labeled diagrams where appropriate.

**SECTION A: Answer ALL Questions (30mks)**

1. The egg is the only cell in higher animals that is able to develop into a new individual. Explain. **(3 marks)**
2. Describe how a sperm is highly adapted for delivering its DNA to an egg **(3 marks)**
3. Explain the formation of **blastula** **(3 marks)**
4. Describe **gastrulation** in the sea urchin **(3 marks)**
5. Distinguish instructive versus permissive induction **(3 marks)**
6. Explain polarity in the chick egg and zygote **(3marks)**
7. Explain the developmental importance of asymmetry **(3marks)**
8. Describe the essential features of the mammalian reproductive system and their functions. **(3 marks)**
9. Explain the structure and function of the amnion, chorion and allantois membranes of the embryo. **(3 marks)**
10. Outline the hormonal control of the menstrual cycle in the human female **(3 marks)**

**SECTION B: ANSWERS ANY TWO QUESTIONS (40 MARKS)**

11. Discuss the fates of embryonic germ layers of invertebrates and explain how the migrating cells can be tracked. **(20 marks)**
12. Discuss complete and incomplete metamorphosis in a typical insect. **(20 marks)**
13. Discuss the stages of cleavage in *Xenopus* sp. **(20 marks)**
14. Describe an experiment showing that although the cells in various tissues of an organism vary, their genetic composition is constant. **(20 marks)**

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