



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE IN BIOLOGY

SZL 203: DEVELOPMENTAL BIOLOGY

DATE: 24/9/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

Instructions Answer question 1 and any other two questions.

Illustrate your answer with clear well labeled diagrams wherever appropriate.

1.
 - a) Illustrate the structure of a mammalian sperm. (3 marks)
 - b) Explain the functions of the main regions of the sperm (3 marks)
 - c) Explain the concept “neoteny”. (3 marks)
 - d) Outline the role of factors that regulate metamorphosis in amphibians (3 marks)
 - e) Explain the characteristics of the various poles of the mammalian egg (3 marks)
 - f) Explain the function of the insect sperm once it is deposited in a female insect (3 marks)
 - g) Explain the characteristics of *haemochorialis* placenta (3 marks)
 - h) Distinguish between the various types of development in living systems(3 marks)
 - i) Outline the process that occurs during early cleavage (3 marks)
 - j) Explain how fertilization triggers development of the mammalian egg to lead to zygote (3 marks)
2. Discuss the extra – embryonic membranes found in chick embryos. (20 marks)
3. Explain the different types of metamorphosis in insects (20 marks)
4.
 - a) Explain the process of gastrulation during mammalian embryology (10 marks)
 - b) Explain the process of gamete formation in mammalian females (10 marks)
5. Discuss Embryonic induction in vertebrates (20 marks)