



MACHAKOS UNIVERSITY

University Examinations 2019/2020 academic Year

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: 21/1/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS

1. Answer Question one (compulsory) and **any two** questions in Section B.
2. Use clean well labelled diagrams wherever appropriate.

SECTION A

QUESTION ONE (30 MARKS) COMPULSORY

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|----|---|-----------|
| a) | Describe three (3) disorders that result from improper neurulation | (3 marks) |
| b) | Explain “ontogenetic development” | (3 marks) |
| c) | Outline the role of the hormone Oestrogen in mammalian reproduction | (3 marks) |
| d) | Briefly discuss polarity of an ovum | (3 marks) |
| e) | Illustrate the structure of an insect egg before ovulation | (3 marks) |
| f) | Outline any three procedures of drawing fate maps | (3 marks) |
| g) | Explain epimorphosis and methods in which it may occur | (3 marks) |
| h) | Outline the regulation of metamorphosis in insects | (3 marks) |
| i) | Briefly explain parthenogenesis as a mode of reproduction | (3 marks) |
| j) | Explain ovoviviparity in sexual reproduction | (3 marks) |

SECTION B

QUESTION TWO (20 MARKS)

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|----|---|------------|
| a) | Describe the process of gastrulation in mammals. | (10 marks) |
| b) | Outline the various types of cleavage in mammalian embryology | (10 marks) |
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QUESTION THREE (20 MARKS)

Discuss metamorphosis in amphibians

QUESTION FOUR (20 MARKS)

Discuss embryonic induction in vertebrates

QUESTION FIVE (20 MARKS)

- a) Discuss the function of extra-embryonic membranes during human embryology (10 marks)
- b) Describe the stepwise development to viviparity (10 marks)