



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF PURE AND APPLIED SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

SECOND YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF AGRICULTURAL EDUCATION AND EXTENSION

BACHELOR OF SCIENCE IN BIOLOGY

SZL203 : DEVELOPMENTAL BIOLOGY

DATE: 17/3/2022

TIME : 2:00 – 4:00 PM

INSTRUCTIONS

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

SECTION A

1. – Compulsory (30 marks)

- 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

- 2 Discuss embryonic induction in vertebrates 20 marks
- 3 a, Describe the process of gastrulation in mammals. 10 marks
b. outline the various types of cleavage in mammalian embryology 10 marks
- 4 a. Discuss the function of extra-embryonic membranes during human embryology 10 marks
b. Describe the stepwise development to viviparity 10 marks
5. Discuss metamorphosis in amphibians 20 marks