

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc./B.Ed. DEGREE PROGRAMME – LEVEL 04
FINAL EXAMINATION – 2023/24

ZYU4302: ANIMAL DEVELOPMENT



DATE: 07th October 2023

Time: 1.30 p.m. – 3.30 p.m.

ANSWER **ANY 04** QUESTIONS.

ANSWERS TO QUESTIONS SHOULD BE ILLUSTRATED WITH CLEARLY LABELLED DIAGRAMS, WHERE NECESSARY.

1. Describe the process of spermatogenesis occurring in a frog. (85 marks)
How does this process differ from the process of oogenesis in frog? (15 marks)
2. Discuss the effect of quantity and distribution of yolk on cleavage of eggs. (100 marks)
3. Describe the process of gastrulation in amphioxus. (75 marks)
Highlight the differences between the process of gastrulation in amphioxus and that of frog. (25 marks)
4. Outline the process of wing development of chick embryo. (100 marks)
5. (i) Describe the experiment which proved the instructive and permissive nature of induction process that determine cells in embryos. (35 marks)
(ii) Describe the experiment which proved that the dorsal lip of the blastopore of amphibian embryo is a primary organizer for embryogenesis. (35 marks)
(iii) Describe the set of experiments which proved that the inductive nature of the organizer region/dorsal lip area changes throughout gastrulation. (30 marks)
6. Write short notes on **any 2** of the following:
 - (a) Prevention of polyspermy in sea urchin
 - (b) Programmed cell death (Apoptosis)
 - (c) Hormonal regulation in insect metamorphosis
 - (d) Assisted reproductive technologies (50 marks for each)
