

THE OPEN UNIVERSITY OF SRI LANKA

B. Sc. DEGREE PROGRAMME –LEVEL 04  
FINAL EXAMINATION – 2017/18

ZYU4302 – ANIMAL DEVELOPMENT

DATE: 19<sup>th</sup> September 2018

Time: 1.30 p.m. – 3.30 p.m.



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ANSWER ANY FOUR (4) QUESTIONS

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

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1. (i) Describe the process of gastrulation in amphioxus. (88 marks)  
(ii) Highlight the differences between the process of gastrulation in amphioxus and that of frog. (12 marks)
  
2. (i) Describe the development of spermatozoa within the seminiferous tubules of a vertebrate testis. (85 marks)  
(ii) Discuss how the structure of a spermatozoon is suitably adapted to perform its function. (15 marks)
  
3. Discuss the effect of quantity and distribution of yolk on cleavage of eggs. (100 marks)
  
4. (i) Outline the process of vertebrate eye formation and differentiation of lens. (88 marks)  
(ii) Considering the formation of eye as an example explain, primary, secondary and tertiary inductions taking place during organogenesis. (12 marks)

5. (i) Describe an experiment which proved the instructive and permissive nature of induction process that determines cells in an embryo. (35 marks)

(ii) Describe an experiment which proved that the differentiated adult cells (e.g., mammary gland cells) can de-differentiate. (65 marks)

6. Write short notes on **any 2** of the following;

- (a) Prevention of polyspermy in sea urchin
- (b) Chick extra-embryonic membranes
- (c) Hormonal regulation in insect metamorphosis
- (d) Assisted reproductive technologies

(50 marks for each)