

**B.Sc. 6th Semester (Honours) Examination, 2024 (CBCS)****Subject : Zoology****Course : CC-XIII****(Developmental Biology)****Time: 2 Hours****Full Marks: 40***The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words  
as far as practicable.***Group – A**

1. Answer *any five* of the following questions:  $2 \times 5 = 10$
- (a) Differentiate between holoblastic and meroblastic cleavage.
  - (b) What is Grey crescent? Is it significant for morphogenetic movement?
  - (c) What is the requirement of differential gene amplification in oogenesis?
  - (d) What is golgi rest? How is golgi rest formation related to spermatogenesis?
  - (e) What happens with the removal of chorio-allantoic membrane of chick embryo?
  - (f) How is de-differentiation process important in regeneration in amphibians?
  - (g) Differentiate between spermogenesis and spermatolysis.
  - (h) Name two viruses which are teratogenic in nature.

**Group – B**

2. Answer *any two* of the following questions:  $5 \times 2 = 10$
- (a) What is dictyate arrest? How is this arrest an important factor in development of megalecithal eggs? 2+3
  - (b) Delineate the process of lens induction in vertebrate eye.
  - (c) Explain how B-catenin protein specifically accumulated at the dorsal side of the amphibian embryo.
  - (d) Differentiate between deciduous and non-deciduous placenta with examples.

**Group – C**

3. Answer *any two* of the following questions:  $10 \times 2 = 20$
- (a) What is capacitation? Why capacitation is an essential event in mammalian fertilization but not so in case of sea urchin? State the cascade of events in “Slow block to polyspermy in sea urchin”. 2+3+5

**Please Turn Over**

- (b) Differentiate between different types of Placenta based on histological structure with suitable diagram. Add a note on significance of placenta. 6+4
- (c) State the function of sertoli cells in spermatogenesis. Mention the changes taking place in spermatid nucleus and golgi to form the head structure of mature spermatozoa. What is manchette? 4+4+2
- (d) State the different types of regeneration found in animal kingdom with one example of each. Explain the role of stem cells in the process of regeneration in hydra. What are head and foot organizer in hydra? 3+3+4
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