

2023

ZOOLOGY — HONOURS

Paper : CC-13

(Developmental Biology)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer **question no. 1** and **any four** questions from the rest.

1. Answer **any five** questions : 2×5
- (a) What do you mean by fate map?
 - (b) What is meant by xenoplastic transplantation?
 - (c) Mention the role of chordin in embryogenesis.
 - (d) Name two markers of stem cell.
 - (e) What is a fertilization cone?
 - (f) State the functions of yolk.
 - (g) What is the function of cumulus oophorus?
 - (h) Explain emboly.
 - (i) What is a foetal placenta?
 - (j) What is a manchette?
2. (a) Give an illustrative account of spermiogenesis.
- (b) Classify placenta based on histological features. 5+5
3. (a) Write a brief note on acrosome reaction.
- (b) State the role of resact in species specific sperm attraction. What is first block to polyspermy? 5+(3+2)
4. (a) Briefly discuss the process of neurulation.
- (b) How do stem cells help in cartilage regeneration?
- (c) What is meant by potency of stem cells? 5+3+2

Please Turn Over

5. (a) Classify eggs on the basis of distribution of yolk.
(b) Comment briefly on the different types of egg membranes. 5+5
6. (a) How many types of cleavage pattern can be observed based on the amount and distribution of yolk?
(b) Mention the importance of primitive streak. What is amphibixis? 5+(3+2)
7. (a) How can a fate map be constructed using
(i) Vital dye marking
(ii) Radioactive technique?
(b) What role do extraembryonic membranes play in the development of chick embryo? $(2\frac{1}{2} \times 2) + 5$
8. Write brief notes on : $2\frac{1}{2} \times 4$
(a) Lens formation in chick embryo
(b) Function of sertoli cells
(c) In vitro fertilization (IVF)
(d) Perivitellogenic growth of oocyte.
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