

2022

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) Define spermiogenesis.
 - (b) Mention the types of egg on the basis of distribution of yolk.
 - (c) Mention the role of Sertoli cells in spermatogenesis.
 - (d) Distinguish between non-permeating and permeating CPAs.
 - (e) Mention different histological layers found in human placenta.
 - (f) Differentiate between totipotent and pluripotent embryonic stem cells.
 - (g) State the role of noggin in embryogenesis.
 - (h) What is seroamniotic raphe?
 - (i) Define differentiation.
2. (a) Give an account of growth phase of oogenesis.
- (b) Describe various planes of cleavage with suitable diagram and example. 5+5
3. (a) Write a note on prevention of polyspermy during fertilization of sea urchin.
- (b) Describe the process of primitive streak formation in chick with suitable diagram. 5+5
4. (a) Discuss the role of dorsal lip of blastopore during gastrulation of frog.
- (b) Explain the process of primary induction in light of Spemann and Mangold's experiment. 5+5
5. (a) Write the process of optic cup and lens formation in chick embryo.
- (b) Explain secondary induction with example.
- (c) What is ingression? 6+2+2

Please Turn Over

6. (a) State the properties of stem cells.
(b) How stem cells help in bone marrow transplantation?
(c) Mention name of two stem cell markers. 4+4+2
7. (a) State the advantages and disadvantages of *in vitro* fertilization.
(b) Mention the steps involved in embryo transfer.
(c) Give an illustrative account on the formation of compartments in vertebrate brain. 2+3+5
8. Write brief notes on : 2½×4
(a) Functions of amnion and chorion of chick
(b) Fate map in chick embryo
(c) Cryopreservation of spermatozoa
(d) Amphimixis.
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