

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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