

2021

ZOOLOGY — HONOURS

Second Paper

(Unit - I)

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 of the following : 2×5
- (a) Differentiate between GIFT and ZIFT.
 - (b) What is totipotency?
 - (c) Distinguish between invagination and involution.
 - (d) What is amphimixis?
 - (e) Name two common cryoprotectants.
 - (f) Write any two applications of embryonic stem cells.
 - (g) Define polar bodies.
 - (h) Differentiate morula and blastula.
2. (a) State the functions of sertoli cells.
- (b) Name the factors controlling spermatogenesis.
- (c) Briefly describe the process of acrosome reaction. 2½+2½+5
3. (a) State the functions of amnion and chorion.
- (b) Differentiate between endotheliochorial and haemoendothelial placenta with suitable examples.
- (c) Mention different steps of *in vitro* fertilization. (2+2)+3+3
4. (a) Illustrate pre-vitellogenic growth phase of oogenesis.
- (b) Describe gastrulation of frog with suitable diagram. 5+5
5. (a) Write a note on prevention of polyspermy during fertilization.
- (b) Briefly describe the process of development of eye in chick with special reference to lens formation. 5+5

Please Turn Over

6. (a) What is fate map? Draw and describe fate map of chick blastula.
(b) Mention role of noggin and follistatin during embryogenesis. (2+2+3)+(1½+1½)
7. (a) Briefly describe the egg activation in sea urchin.
(b) Differentiate determinate and indeterminate cleavage.
(c) Describe the characteristics of embryonic stem cells.
(d) What is zona radiata? 3+3+2+2
8. (a) Differentiate between spermatogenesis and oogenesis.
(b) What is capacitation? Why is it required for fertilization?
(c) What is differentiation? 4+4+2
9. Write notes on : 2½×4
(a) Reciprocal induction in eye development
(b) Hensen's node
(c) Primary and secondary egg membrane
(d) Significance of yolk in cleavage.
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