

2021

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 **any ten** questions.

1. Briefly describe about spermiogenesis process with suitable diagram. 3+2
 2. What is Nieuwkoop centre? What is primary egg membrane? What is yolk plug? 2+2+1
 3. What is acrosome reaction? Briefly describe the cortical granule reaction. 1+4
 4. Distinguish between : 2½+2½
 - (a) Invagination and epiboly
 - (b) Macrolecithal and mesolecithal egg.
 5. What do you mean by vital dye marking? Draw and describe the fate map of chick blastula. 1+1½+2½
 6. State the process of formation of allantois. Mention the function of amnion. 3+2
 7. State the major functions of organizer. What is evocator? 4+1
 8. Differentiate between meroblastic and holoblastic cleavage. Mention the importance of primitive streak. 2+3
 9. Give an account of types of placenta in mammals depending on maternal and fetal tissues with examples. 5
 10. Briefly describe the process of optic cup formation in chick embryo and comment on induction for lens formation. 3+2
 11. What is sperm capacitation? Mention major molecular changes occur in mammalian sperm capacitation. 1+4
 12. What do you mean by *in vitro* fertilization? What is intra-cytoplasmic-sperm transfer? 2½+2½
 13. What are the differences between cytotrophoblast and syncytiotrophoblast? Define decidua basalis, zonary placenta and cotyledonous placenta. 2+3
 14. State the important properties of stem cells. What are embryonic stem cells? 3+2
 15. Draw and describe the neural tube formation in chick embryo. 2+3
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