

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FOURTH SEMESTER EXAMINATION, AUGUST 2021

SECOND YEAR [BATCH 2019-22]

ZOOLOGY (Honours)

Paper : X [CC10]

Date : 11/08/2021

Time : 11 am – 1 pm

Full Marks : 50

Answer all the questions:

Group A

1. a) How does gastrula differ from blastula in terms of cellular differentiation?
b) Add a note on hedgehog signalling.
c) Mention the significance of capacitation. [2+2+1]
2. a) “Spermatogenesis is the formation of fertilization incapable sperms”-Justify.
b) State the roles of ‘Juno1’ and ‘Izumo’ in mammalian fertilization.
c) What is somite? [2+2+1]
3. a) How do the superficial and discoidal cleavages occur depending on yolk concentration and distribution?
b) Mention three significant characters of ‘B type spermatogonia’.
c) Define delamination. [2+2+1]
4. a) Why placenta is considered to be an ‘intelligent temporary tissue’?
b) How does cortical membrane formation occur to prevent polyspermy?
c) What is AFT? [2+2+1]
5. a) How does the differential hedgehog expression result into neurulation?
b) Classify cleavage based on different cleavage planes.
c) What are raphae? [2+2+1]
6. a) Differentiate between protostomic and deuterostomic levels of organization.
b) Briefly describe the role of PAX6 gene in the optic induction.
c) State the role of chorion. [2+2+1]

Group B

7. a) How do totipotent stem cells differ from pluripotent stem cells?
b) State their characteristic features and importance in medical science. [2+3]
8. a) What and how do the ill effects of teratogenic agents influence embryonic developmental process?
b) Provide a basic mechanistic scheme of IVF? [3.5+1.5]

Group C

9. a) What is an imaginal disc?
b) How does the thyroid hormone regulate amphibian metamorphosis? [1+4]
10. a) What are epimorphosis and morphallaxis?
b) Write a short note on compensatory regeneration of mammalian liver. [2+3]

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