

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FOURTH SEMESTER EXAMINATION, JUNE 2022

SECOND YEAR [BATCH 2020-23]

ZOOLOGY (HONOURS)

Paper : X [CC10]

Date : 25/06/2022

Time : 11 am – 1 pm

Full Marks : 50

Answer **any five** questions:

[5×2]

1. a) What is imaginal disc?  
b) What are the sources of Bisphenol A?  
c) What are Hematopoietic stem cells?  
d) What are the advantages and disadvantages of using 'Vital dyes' during fate mapping?  
e) What are committed stem cells?  
f) Why does cleavage require incomplete cell division?  
g) Mention the significance of protamine instead of histone in newly formed sperms.  
h) Differentiate between protostomes and deuterostomes.

Answer **any four** questions:

[4×10]

2. a) What are teratogens?  
b) Mention the names of two viruses that act as teratogenic agents.  
c) What is foetal alcohol syndrome?  
d) Comment on the teratogenic effect of thalidomide.  
e) What are endocrine disrupting chemicals? Give examples. [2+2+2+2+2]
3. a) Define Stem Cells. Write down the salient features of stem cells with proper example.  
b) What are Embryonic Stem cells? How are Embryonic Stem cells different from Adult Stem cells?  
c) What do you mean by Progenitor cells? Why Zygote is known as a totipotent stem cell? [4+3+3]
4. a) Define Potency. What are Unipotent stem cells? How are they different from Pluripotent and Multipotent stem cells?  
b) What are the proposed functions of Nanog, Oct4 and Stat3 in retaining the uncommitted pluripotent fate of embryonic mouse cells?  
c) What are iPSCs? [5+3+2]
5. a) What is the role of Thyroid hormone in the metamorphosis of Amphibia.  
b) What are Epimorphosis and Morphallaxis?  
c) Describe molecular mechanism of compensatory regeneration of human liver. [5+2+3]
6. a) Differentiate between spermatogenesis and spermiogenesis.  
b) Add a note on acrosomal reaction.  
c) State the significance of capacitation.  
d) What is semen? Mention its compositional importance. [2+3+2+3]
7. a) Discuss the process of slow block of polyspermy.  
b) Mention two important differences between blastula and gastrula.  
c) Classify eggs depending on the position and amount of yolk.  
d) What is 'Resact'? [3+2+3+2]
8. a) "Placenta is an embryological endocrine temporary tissue"—justify the statement.  
b) Define the term cellular potency and cellular commitment.  
c) State the series of phenomena occurring in the pre-vitellogenesis phase of oogenesis.  
d) With diagram, state the steps of sperm ovum recognition in external fertilization. [3+2+2+3]

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