

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

FIRST YEAR [2018-21]

B.A. /B.Sc. SECOND SEMESTER (January – June) 2019

Mid-Semester Examination, March 2019

Date : 25/03/2019

Time : 11am – 1pm

**ZOOLOGY (Honours)**

Paper: II

Full Marks: 50

1. Answer **any five** questions of the following: [5 × 2]
  - a) What is an amniotic egg?
  - b) Why lampbrush chromosome is seen in the amphibian primary oocyte?
  - c) Define isoalleles with proper example.
  - d) What do you mean by 'Phenocopy'?
  - e) Differentiate between filoplume and down feather?
  - f) 'Endostyle of Branchiostoma is the forerunner of thyroid glands in vertebrate' – Explain.
  - g) How Giraffe has an unique horn compared to other horns?
  - h) Justify the statement, "All vertebrates are chordates but all chordates are not vertebrates".
2. Answer **any four** questions of the following: [4 × 10]
  - a) Briefly explain the acrosome reaction in sea urchin. What is area pellucida? "During mammalian fertilization polyspermy never leads to polyploidy"-justify. [5+2+3]
  - b) Name the factors responsible for guiding the patterns of cleavage? Name different cues which are used by a mammalian sperm to specify the location of an ovum. Why the blood testis barrier is dynamic? What is Cytostatic Factor? [3+2+3+2]
  - c) Mention the significance of stem cell niches. What are the risks or disadvantages of in vitro fertilization? What do you mean by 'foetal alcohol syndrome'? Briefly describe the effect of Retinoic Acid as a teratogen. [2+4+1+3]
  - d) Explain the biting mechanism of solenoglyphous snake with suitable diagram. How ASVS is produced in India? Describe the ARO of climbing perch? [5+2+3]
  - e) Compare primary and secondary gill bars of *Branchiostoma*. Write down the development of mammalian hair. Why Antler is not a true horn? Mention various parts of a typical canal neuromast. [2+3+2+3]
  - f) Mention the role of endostyle in *Ascidia*. What is the significance of 'Axial Complex' in the life cycle of tunicates? Briefly explain the 'Root effect' for diffusion of gases from blood to swim bladder in fish. Name different components of a 'Weberin apparatus' in fish. [3+2+3+2]
  - g) Discuss about lethal alleles and their subtypes. Briefly explain two basic laws of probability. Differentiate between incomplete dominance and co-dominance. What do you mean by recessive epistasis? [3+3+2+2]
  - h) Draw and describe the modifications of aortic arches in reptilers. Place the following animals (**any two**) into their respective classes and sub classes/order with reasons (mention at least two characters at least for each taxon. For fishes upto sub class and upto order for the rest) [(2+3)+(2×2.5)]
    - i) *Heteropneustes* sp.
    - ii) *Tylototriton* sp.
    - iii) *Rana* sp.