

## CORE-XIII (DEVELOPMENTAL BIOLOGY)

### I. Answer the following questions in 2-3 sentences. [1.5]

- 1) What is cell-cell interaction?
- 2) What do you understand by asymmetric cell division.
- 3) What is gametogenesis?
- 4) Differentiate between internal and external fertilization.
- 5) Differentiate between fast block and slow block to polyspermy.
- 6) What is cleavage?
- 7) What are fate maps?
- 8) What is metamorphosis?
- 9) What is stem cell culture?
- 10) What are Reactive oxygen species?
- 11) What is the purpose of IVF?
- 12) What is the role of placenta?
- 13) What is fertilization cone?
- 14) What is fertilizin- antifertilizin reaction?
- 15) What is cortical reaction?

### II. Answer the following questions in 75 words. [2]

- 1) What are the phases of development?
- 2) What is pattern formation?
- 3) What is differentiation and growth?
- 4) What do you mean by differential gene expression?
- 5) What are cytoplasmic determinants?
- 6) What is embryonic induction?
- 7) What are organizers?
- 8) Give the fate of germ layers.
- 9) What are the advantages and disadvantages of amniocentesis?
- 10) What are different morphogenetic movements during gastrulation?
- 11) What are the stages of metamorphosis in insects?
- 12) How is metamorphosis controlled in amphibians?
- 13) Give the hormonal control of metamorphosis in insects.
- 14) Name some teratogenic agents.
- 15) What is genomic equivalence?

### III. Answer the following questions in 500 words. [6]

- 1) Give a detailed account on oogenesis.
- 2) Explain spermatogenesis.
- 3) What are the different types of eggs?
- 4) What are egg membranes?
- 5) What are the changes in gametes during fertilization?
- 6) What are the blocks to polyspermy?

- 7) Define cleavage. Give the planes and patterns of cleavage.
- 8) What are the different types of blastula?
- 9) State about the techniques for constructing fate maps.
- 10) Explain early development of frog up to gastrulation.
- 11) Explain early development of chick up to gastrulation.
- 12) Give an account on extra-embryonic membranes in birds.
- 13) Give brief account on implantation of embryo in humans.
- 14) Give the structure, types and function of placenta.
- 15) Explain metamorphosis in amphibians and insects.
- 16) What are the different modes of regeneration?
- 17) Give the concepts and theories of ageing.
- 18) Explain teratogenesis.
- 19) What is In vitro fertilization (IVF)?
- 20) Describe amniocentesis.