

(e) What is teratogenesis ? Write a brief account on *any two* environmental factors responsible for teratogenesis. 1+4=5

4. Describe asymmetric regulation of cellular determinants. Mention its importance. 7+3=10

Or

What is cell-cell interaction ? Describe stable cell interaction with labelled diagram. 1+7+2=10

5. What is gastrulation ? Describe the process of gastrulation in frog embryo. 2+8=10

Or

What are the extra embryonic membranes ? Describe the extra embryonic membranes in birds with labelled diagrams. 1+7+2=10

6. What are the different modes of regeneration ? Describe the epimorphic regeneration found in salamander's limb. 3+7=10

Or

What do you mean by Oogenesis ? Describe the process with suitable labelled diagrams. 2+8=10

Total number of printed pages-4

3(Sem-6/CBCS)ZOO HC 1

2025

ZOOLOGY

(Honours Core)

Paper : ZOO-HC-6016

(Developmental Biology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct option : 1×7=7
 - (a) Which of the following cells are capable of asymmetric cell division ?
 - (i) Hepatocytes
 - (ii) Epithelial cells
 - (iii) Stem cells
 - (iv) Neurons
 - (b) Which of the following helps in the penetration of the egg by the sperm ?
 - (i) Fertilization membrane

- (ii) Antifertilizin
- (iii) Sperm lysin
- (iv) Fertilizin

(c) The notochord develops from which of the following embryonic germ layers?

- (i) Endoderm
- (ii) Ectoderm
- (iii) Neuroectoderm
- (iv) Mesoderm

(d) Regeneration of a limb or tail is an example of:

- (i) Epimorphosis
- (ii) Autonomy
- (iii) Morphallaxis
- (iv) Compensatory hypertrophy

(e) The motile germ cell is called a/an:

- (i) Isogamete
- (ii) Female gamete
- (iii) Male gamete
- (iv) Spermatocyte

(f) Fate map of embryo is prepared at:

- (i) Morula stage
- (ii) Blastula stage

- (iii) Gastrula stage
- (iv) Neurula stage

(g) Which of the following are potential effects of a teratogen on a foetus?

- (i) Death
- (ii) Low birth weight
- (iii) Neural defects
- (iv) All of the above

2. Write short notes on : $2 \times 4 = 8$

- (a) Pattern formation in developmental process
- (b) Holoblastic cleavage
- (c) Teratogens
- (d) Functions of amnion

3. Answer **any three** of the following : $5 \times 3 = 15$

- (a) What is epithelial-mesenchymal interaction? Describe its properties with examples.
- (b) Describe the fate map of a typical chordate blastula.
- (c) Describe the mechanism of "block to polyspermy" in mammalian species.
- (d) Describe the structure of human placenta.