

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 :  $1 \times 7 = 7$
- (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 : 2×4=8
- (a) Pattern formation in developmental process  
 (b) Holoblastic cleavage  
 (c) Teratogens  
 (d) Functions of amnion
3. Answer **any three** of the following : 5×3=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.

(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.  $2+8=10$