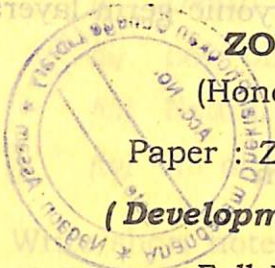
Total number of printed pages–4

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

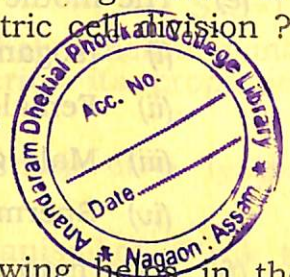
(a) Which of the following cells are capable of asymmetric cell division ?

(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 : 2×4=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