

2024

(CBCS)

(6th Semester)

ZOOLOGY

TENTH PAPER

(Developmental Biology)

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks for the questions***(SECTION : A—OBJECTIVE)**

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. In oogenesis, how many polar bodies are formed at the end of the meiotic division?
(a) 2 () (b) 3 ()
(c) 4 () (d) 5 ()
2. If many spermatozoa succeed in penetrating the ovum, the condition is called
(a) polyspermy () (b) polyploidy ()
(c) polygamy () (d) monospermy ()
3. The animals in which two germ layers are formed during the development are called
(a) triploblastic animals ()
(b) diploid animals ()
(c) diploblastic animals ()
(d) deuterostomes ()

4. The term 'neurogenesis' includes the formation of
 - (a) brain ()
 - (b) spinal cord ()
 - (c) sense organ ()
 - (d) pituitary gland ()
5. In protostomes, blastopore forms
 - (a) anus ()
 - (b) mouth ()
 - (c) blastocoel ()
 - (d) blastomere ()
6. Grey crescent area gives rise the formation of
 - (a) blastula ()
 - (b) blastopore ()
 - (c) blastocoel ()
 - (d) blastomere ()
7. Juvenile hormone in insect is secreted from
 - (a) adipose tissues ()
 - (b) corpora allata ()
 - (c) prothoracic gland ()
 - (d) corpora cardiaca ()
8. Which of the following occurs during the regeneration of limb in vertebrates?
 - (a) stem-cell mediated regeneration ()
 - (b) compensatory regeneration ()
 - (c) morphallaxis ()
 - (d) epimorphosis ()
9. The branch of study dealing with old age and aging is called
 - (a) oncology ()
 - (b) teratology ()
 - (c) gerontology ()
 - (d) herpatology ()
10. During embryonic development, when an incomplete closing of the backbone and membranes around the spinal cord occurs, is known as
 - (a) spina bifida ()
 - (b) syndactyly ()
 - (c) phocomelia ()
 - (d) cleft palate ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write short notes on the following :

3×5=15

UNIT—I

1. Acrosomal reaction

OR

2. Meroblastic and holoblastic cleavage

UNIT—II

3. Blastulation

OR

4. Functions of amnion and chorion

UNIT—III

5. Fate map

OR

6. Morphogenetic fields

UNIT—IV

7. Regeneration

OR

8. Complete metamorphosis

UNIT—V

9. Phocomelia

OR

10. Transgenesis

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer the following questions :

10×5=50

UNIT—I

1. What is fertilization? Describe in detail the process of fertilization. 2+8=10

OR

2. What do you mean by zygote? Describe the different types of eggs with example of each. 2+8=10

UNIT—II

3. Write an account on the types of extraembryonic membranes and their roles. 10

OR

4. Classify the different types of placenta. What are its functions? 5+5=10

UNIT—III

5. Write notes on the concepts of organizer and induction. 5+5=10

OR

6. What do you mean by morphogenetic movements? Describe invagination, involution, ingression and delamination with suitable diagrams. 4+6=10

UNIT—IV

7. What is metamorphosis? Write a detailed note on the amphibian metamorphosis and its hormonal regulation. 2+8=10

OR

8. Write an essay on the hox genes and their functions in *Drosophila*.

UNIT—V

9. Explain the concept of ageing and the different theories. 10

OR

10. What are stem cells? Describe the types of stem cells with one example for each. 10

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