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(CBCS)

(6th Semester)

ZOOLOGY

TENTH PAPER

(Developmental Biology)

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 10)

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

1×10=10

1. Mammalian eggs contain so little yolk that they are sometimes called

- (a) alecithal eggs ()
- (b) medialecithal eggs ()
- (c) macrolecithal eggs ()
- (d) All of the above ()

2. Radial cleavage is found in

- (a) polychoerus ()
- (b) Ctenophora ()
- (c) echinoderms ()
- (d) cephalopods ()

3. The artificial marking methods in the construction of fate maps of amphibians were first discovered by
- (a) Spratt ()
 - (b) Hotta and Benzer ()
 - (c) Vogt ()
 - (d) Waddington ()
4. After 24 hours of incubation, the number of mesodermal somites is
- (a) 2 ()
 - (b) 3 ()
 - (c) 4 ()
 - (d) 5 ()
5. Ingression is one of the many changes in the location or relative position of cells that takes place during the
- (a) gastrulation ()
 - (b) blastulation ()
 - (c) Both (a) and (b) ()
 - (d) None of the above ()
6. Imaginal discs in insect larvae are examples of
- (a) invagination ()
 - (b) involution ()
 - (c) morphogenetic gradients ()
 - (d) morphogenetic fields ()
7. Various types of cells aggregate into masses and organize into a whole organism in
- (a) coelenterates ()
 - (b) sponges ()
 - (c) vertebrates ()
 - (d) protozoans ()
8. If the corpora allata are removed in the last larval stage of the honeybee or silk moth,
- (a) growth is stopped ()
 - (b) it dies ()
 - (c) monster is formed ()
 - (d) there is no effect ()

9. Man has an average life span of 100 years that is set by a group of
- (a) growth genes ()
 - (b) lethal genes ()
 - (c) terminal genes ()
 - (d) death genes ()
10. The process of introducing a gene from one organism into the genome of another organism is
- (a) transgenesis ()
 - (b) tetragensis ()
 - (c) tumorigenesis ()
 - (d) All of the above ()

SECTION—B
(Marks : 15)

Write short notes on the following :

3×5=15

1. Types of eggs

OR

Cleavage

2. Extra-embryonic membranes

OR

Fate maps

3. Ingression

OR

Embryonic induction

4. Morphallaxis

OR

Juvenile hormone

5. Congenital disorders

OR

Totipotent stem cells

(PART : B—DESCRIPTIVE)

(Marks : 50)

The figures in the margin indicate full marks for the questions

1. Describe the structure of a fully developed human sperm with diagram. 10

OR

Define parthenogenesis. Describe the types of parthenogenesis giving suitable examples. 2+8=10

2. What is blastula? Explain the process of blastulation in frog. 2+8=10

OR

Describe the classification of mammalian placenta and add a note on the functions of placenta. 7+3=10

3. What do you understand by morphogenetic fields? Explain the gradient theory with experimental evidences. 3+7=10

OR

Write short notes on the following : 5+5=10

(a) Involution

(b) Delamination

4. What are *Hox* genes? Add a note on their functions in *Drosophila*. 2+8=10

OR

Discuss amphibian metamorphosis and its hormonal regulation. 7+3=10

5. Write a descriptive note on the concept of transgenesis. 10

OR

Define ageing. Describe the models of ageing. 2+8=10
