

(6 Pages)

Reg. No. : .....

Code No. : 5710

Sub. Code : ZZOM 22

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2022

Second Semester

Zoology — Core

DEVELOPMENTAL BIOLOGY

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The ability of cells to respond to a specific inductive signal is called
  - (a) Competence
  - (b) Regional specificity of induction
  - (c) Juxtracrine signaling
  - (d) Instructive interaction

2. The progressive specialization in structure and function of a cell or organ is called
  - (a) Cell fate
  - (b) Competence
  - (c) Differentiation
  - (d) Induction
3. The fertilized egg divides by the process
  - (a) Oogenesis
  - (b) Cleavage
  - (c) Regeneration
  - (d) Invagination
4. The organ formed during Gastrulation is
  - (a) gill
  - (b) vitelline membrane
  - (c) heart
  - (d) archenteron
5. Regeneration of a limb or tail is an example of
  - (a) Epimorphosis
  - (b) Autotomy
  - (c) Compensatory hypertrophy
  - (d) Morphallaxis
6. Nuclear determinants are also called as
  - (a) Inducers
  - (b) Organizers
  - (c) Morphogens
  - (d) Maternal genes





7. The repair by cell division in the damaged tissue is called

- (a) Exponential growth
- (b) Eacceleration growth
- (c) Epimorphosis regeneration
- (d) Morphallaxis regeneration

8. Restorative regeneration is

- (a) healing of wounds
- (b) formation of a new entity from a piece of the body of the parent
- (c) a regular process in which the dead and worn-out cells of some organs are continuously replaced by new cells
- (d) all of these

9. \_\_\_\_\_ is a type of autosomal genetic disorder.

- (a) Hemophilia
- (b) Sickle cell anemia
- (c) Skeletal dysplasia
- (d) Both (b) and (c)

10. The totipotent inner cells of gemmules are formed from

- (a) Scleroblasts
- (b) Archeocyte
- (c) Trophoblasts
- (d) Neoblasts

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a note on competence.

Or

(b) Give an account on cell lineages.

12. (a) Comment on production of gametes.

Or

(b) List out the features of Gastrulation.

13. (a) Comment on vulva formation in *Caenorhabditis elegans*.

Or

(b) Write a note on cell aggregation in *Dictyostelium*.

14. (a) List out the evolutionary significance of neotony.

Or

(b) Comment on gradient and polarity.

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15. (a) What is the main cause of male fertility?

Or

- (b) What is GIFT? Explain.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Explain the different types of differentiation.

Or

- (b) Give an account on different types of stem cells.

17. (a) Write an essay on any three mechanism of fertilization.

Or

- (b) Describe oogenesis with suitable examples.

18. (a) Write an essay on tremendous changes takes place during metamorphosis.

Or

- (b) Comment on limb development and regeneration in vertebrates.

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19. (a) Explain the different types of regeneration.

Or

- (b) Describe the development of immune system in vertebrates.

20. (a) Write an essay on Assisted Reproductive Technology (ART).

Or

- (b) Comment on patterns of Asexual reproduction.

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