

(6 pages)

Reg. No. :

Code No. : 7448

Sub. Code : ZZOM 22

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2023

Second Semester

Zoology – Core

DEVELOPMENTAL BIOLOGY

(For those who joined in July 2021 – 2022)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. _____ cells originate as inner cell mass cells within a blastocyst.
- (a) Totipotent cell
(b) Germipotent cell
(c) Embryonic stem cells
(d) Pluripotent cell

2. Phenomena that some cells evoke a specific developmental response in other cell is
- (a) Embryonic influence
(b) Embryonic induction
(c) Embryonic stimulation
(d) Embryonic dominance.
3. The spermatogenesis occurs in the _____ of the testis.
- (a) fallopian tubes
(b) seminiferous tubes
(c) ovaries
(d) uterus
4. Fertilizins are the substances emitted from
- (a) mature egg (b) sperms
(c) immature egg (d) polar body
5. The germ layer that gives rise to the digestive tract is
- (a) mesoderm (b) epiderm
(c) endoderm (d) ectoderm

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6. Complete metamorphosis is also called as
- (a) holometabolous
(b) heterometabolous
(c) heterozygous
(d) homozygous
7. Ability to give rise to a new individual entity from body parts is
- (a) reproduction (b) fragmentation
(c) regeneration (d) fission
8. Neoteny refers to
- (a) development of gonads
(b) moulting
(c) metamorphosis
(d) retention of larval traits in the adult body
9. GIFT is an acronym for
- (a) gamete intra fallopian transfer
(b) gamete inter fallopian transfer
(c) gamete intra fallopian traction
(d) gamete inter fallopian traction

10. Male infertility is due to
- (a) low sperm production
(b) abnormal sperm production
(c) blockages preventing sperm delivery
(d) all of the above

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Give a short note on cytoplasmic determinants.
- Or
- (b) Write a brief account on the types of embryonic induction.
12. (a) Write a short note on formation of germ layers in animals.
- Or
- (b) Comment on Fertilizin and antifertilizin.
13. (a) Give an account on axes and pattern formation in *Drosophila*.
- Or
- (b) Discuss on differentiation of neurons.

14. (a) Mention the factors influencing regeneration.

Or

(b) Comment on occurrence and significance of neoteny.

15. (a) Write a note on super ovulation.

Or

(b) Mention the screening of genetic disorders.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Enumerate the different types of stem cells.

Or

(b) Discuss the factors causing differentiation.

17. (a) Give a detailed account on the process of spermatogenesis with necessary diagram.

Or

(b) Explain the various cleavage patterns of eggs you have studied.

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18. (a) Describe the two types of morphogenesis you have studied.

Or

(b) Comment on development and differentiation of epidermal ectoderm in frog.

19. (a) Explain the regeneration capacity in animal kingdom.

Or

(b) Give an account on development of immune system in vertebrates.

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

Or

(b) List out the advantages and disadvantages of GIFT.

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