



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with A++ Grade by NAAC. Recognised by UGC under Section 12B
Coimbatore - 641 043, Tamil Nadu, India
Continuous Internal Assessment I August, 2025
I Semester

Class : I UG
Branch : Zoology

Time : 2 Hours
Max. Marks : 60

23BZOC02 DEVELOPMENTAL BIOLOGY AND EVOLUTION

Course Outcomes:

- CO1: Understand the development of the egg to embryo and adult through cell division, differentiation and morphogenesis.
CO2: Realise the expressions and functions of gene networks in controlling the molecular changes and brings out variation.
CO3: Explore the relevance of developmental biology in medicine and related disorders.
CO4: Know the past and present scenario of research in developmental biology and evolution
CO5: Examine the evolutionary history of the taxa based on developmental affinities

Part A

6 x 1 = 6

Choose the Correct Answer

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|---|-----------|
| 1. Spermatogonia undergo a growth phase to become
a) Primary Spermatocyte b) Secondary Spermatocyte
c) Spermatozoa d) Spermatid | CO1 K1 |
| 2. Anti-fertilizin is secreted by
a) Sperm b) Ovum c) Spermatogonia d) Uterus | CO2 K1 |
| 3. ICSI stands for
a) Intra cytoplasmic sperm injection b) Inter cytoplasmic sperm implant
c) Inter cytstic sperm implant d) Intrauterine sperm injection | CO1 K2 |
| 4. How many cleavages are completed in the 16-celled stage of an egg?
a) 12 b) 8 c) 4 d) 3 | CO2 K2 |
| 5. Which germ layer gives rise to the digestive tract?
a) Mesoderm b) Endoderm c) Epiderm d) Ectoderm | CO2 K1 |
| 6. Which extra embryonic membrane in humans prevents desiccation of the embryo inside the uterus?
a) Amnion b) Chorion c) allantois d) yolk sac | CO2 K1 |

Part B

3 x 6 = 18

Answer ALL questions

Each answer should not exceed 400 words or two pages

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|--|-----------|
| 7.a Differentiate the spermatogenesis and Oogenesis process.
(or) | CO1 K1 |
| 7.b Explain the block of polyspermy during the fertilization | CO1 K2 |
| 8.a Describe about the process of GIFT.
(or) | CO1 K3 |
| 8.b Describe the direct and indirect development. | CO2 K2 |
| 9. a Explain the planes of cleavage.
(or) | CO2 K3 |
| 9.b Give an account on the metamorphosis of insects. | CO3 K2 |

Part C

3 x 12 = 36

Answer ALL questions

Each answer should not exceed 800 words or four pages

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|---|-----------|
| 10.a Explain the biochemical changes in the gametes after fertilization with diagrams
(or) | CO1 K3 |
| 10.b Differentiate between sexual and asexual forms of reproduction with diagrams. | CO1 K4 |
| 11.a Explain the role of fate maps in understanding embryonic development and their fate mapping techniques
(or) | CO1 K3 |
| 11.b Write about the various the morphogenetic movements in embryo development. | CO2 K2 |
| 12. a Describe the organogenesis during the embryo development.
(or) | CO2 K2 |
| 12.b Give an account on the placenta types structure and function. | CO3 K3 |