

FIVE YEAR INTEGRATED M.Sc., EXAMINATION 2023
SEMESTER - V
Paper LS-3-5-5
Developmental Biology

Time: Three Hours

Full Marks: 40

Questions are of value as indicated in the margin.
Answer **Question No.01** and **any three** from the rest.

1. Write short notes on **any ten** of the following: 10 x 1 = 10
 - a. ANT-C
 - b. BX-C
 - c. Maternal effect gene
 - d. Embryonic stem cell
 - e. Morphogen
 - f. Grey crescent
 - g. Induction
 - h. Competence
 - i. Delamination
 - j. Holoblastic cleavage
 - k. Segmentation gene
 - l. Totipotency

2.
 - a. Describe the role of progesteron in fertilization during egg maturation. (5)
 - b. Explain the process of slow block of poly spermy during fertilization. (5)

3.
 - a. Write about genomic equivalence and explain it in the context of cloning experiment. (2+3=5)
 - b. Write the mode of cell type specification and their characteristics. (5)

4.
 - a. Describe the process of spermateleosis. (5)
 - b. What are different types of stem cell potencies? (4)
 - c. What is a progenitor cell? (1)

5.
 - a. How dorsal gene generate the dorso-ventral pattern in the embryo? (5)
 - b. Explain how bicoid and nanos pattern the antero-posterior axis in *Drosophila*. (5)

6. a. What is double fertilization and its significance to the plant? (2+3=5)
- b. What are the differences between the spermatogenesis and oogenesis? (5)