

Exam. Code : 211203

Subject Code : 3883

M.Sc. (Zoology) 3rd Semester

DEVELOPMENTAL BIOLOGY

Paper—ZOOC-702

Time Allowed—3 Hours] [Maximum Marks—100

Note :— Section A is compulsory. Attempt one question each from the Units I-IV under Section-B.

SECTION—A

1. Explain the following in brief :—

- (i) Sperm-oocyte interaction
- (ii) Zona pellucida hatching
- (iii) Fast block to polyspermy
- (iv) Emboly
- (v) Discoidal Cleavage
- (vi) Germ cell formation
- (vii) Transdetermination
- (viii) Dedifferentiation
- (ix) Polarity genes
- (x) Extrinsic factors and genetic control. $2 \times 10 = 20$

SECTION—B

UNIT—I

- 2. Describe :—
 - (a) Acrosome reaction. 10
 - (b) Spermeogenesis. 10
- 3. Write notes on :—
 - (a) Vitellogenesis. 10
 - (b) Embryo transplantation. 10

UNIT—II

- 4. Discuss the phenomenon of gastrulation and morphogenetic movements and its significance. 20
- 5. Explain :—
 - (a) Differentiation. 10
 - (b) Biochemical changes during cleavage. 10

UNIT—III

- 6. Describe induction and inductive responses and add an exhaustive note on hierarchies of induction. 20
- 7. Write notes on :—
 - (a) Metamorphosis in insects. 10
 - (b) Concept of Growth. 10

UNIT—IV

- 8. Discuss the molecular basis of early embryonic development. 20
- 9. Explain :—
 - (a) Nucleus and Cytoplasmic interactions. 10
 - (b) Genetic control during development. 10