[This question paper contains 4 printed pages.]

Your Roll No. .....

Sr. No. of Question Paper : 1119 A

Unique Paper Code : 32231601

Name of the Paper : Developmental Biology

Name of the Course : **B.Sc. (H) Zoology Examination, LOCF**

Semester : VI

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **ANY FIVE** questions in all including Question No. **1** which is compulsory.
3. Illustrate your answers with diagrams, wherever necessary.

1. (a) Define the following : (6×1.5=9)

   (i) Morphogen

   (ii) Implantation

P.T.O.

(iii) Fertilization envelope

(iv) Delamination

(v) Stem cells

(vi) Spermiogenesis

(b) Differentiate between the following : (5×2=10)

(i) Telolecithal and centrolecithal eggs

(ii) Epiboly and emboly

(iii) Epigenesis and preformation

(iv) Epimorphosis and morphallaxis

(v) Juxtracrine and paracrine signaling

(c) Name the germ layer/s from which the each if the following is derived : (5)

(i) Dentine

(ii) Ovary

(iii) Tonsils

(iv) Glial cells

(v) Pharynx

(d) Give the contribution of the following scientists in the field of developmental biology **(any three)** (3)

(i) Ernst Haeckel

(ii) Hans Spemann

(iii) F.R. Lillie

(iv) H.C. Pander

2. (a) Describe the process of oogenesis and discuss the changes that occur in the egg post fertilization until the onset of cleavage divisions (9)

(b) Write in brief about the patterns of cleavage based on the amount of yolk. (3)

3. (a) Discuss the formation and regression of primitive streak in avian development. What is the significance of primitive streak? (7)

(b) Explain the functions of extra embryonic membranes in birds. (5)

4. (a) What are the different types of metamorphosis in insects? Discuss the hormonal control of insect metamorphosis. (9)

P.T.O.

(b) State some of the distinctive metamorphic changes exhibited by anurans. (3)

5. Describe the different types of placenta on the basis of morphology and histology. Add a note on the physiological functions of placenta. (12)

6. (a) Explainthe mechanisms involved in preventing polyspermy. State the need for fast and slow block to polyspermy. (8)

(b) Discuss various theories of ageing. (5)

7. Write short notes on **any three** of the following : (3×4=12)

(a) In vitro fertilization

(b) Acrosomal reaction

(c) Impact of teratogens on human embryonic development

(d) Cytoplasmic determinants in development

(e) Egg membranes

(f) Primary Organizer