

This question paper contains **3** printed pages]

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S. No. of Question Paper : **2996**

Unique Paper Code : **2233582004**

Name of the Paper : **DSC : Developmental Biology of Animals**

Name of the Course : **B.Sc. (P) Applied Life Sciences with
Agrochemicals and Pest Management**

Semester : **IV (NEP-UGCF)**

Duration : **2 Hours**

Maximum Marks : **60**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *four* questions in all.

Question No. **1** is compulsory.

Draw well-labelled diagrams wherever necessary.

1. (a) Define the following (any *five*) :

1×5=5

(i) Amphimixis

(ii) Blastoderm

(iii) Fate map

(iv) Cleidoic egg

(v) Embryonic induction

(vi) Cortical rotation

P.T.O.

(b) Distinguish between the following (any *two*) : 2×2=4

- (i) Radial and Spiral cleavage
- (ii) Hemimetabolous and Holometabolous development
- (iii) Morphogenesis and Epimorphosis

(c) Match the following : 1×4=4

(a)	Abraham Trembley	(i)	Endocrine disruptor
(b)	Edwin G. Conklin	(ii)	Regeneration in Hydra
(c)	Bisphenol A	(iii)	Discovery of germ layers
(d)	Christian Pander	(iv)	Fate Map

(d) Name the germ layer from which the following are derived : 0.5×4=2

- (i) Kidney
- (ii) Pancreas
- (iii) Notochord
- (iv) GI tract lining

2. (a) Illustratively discuss various types of gastrulation movements. 5

(b) Enumerate various steps involved in chick gastrulation. Explain the migration of various cells through the primitive streak. Support your answer with well labelled drawings. 10

3. (a) Explain the process of external fertilization in sea urchin. 10
- (b) Explain embryonic induction and enumerate the functions of primary organizer. 5
4. (a) Define metamorphosis. Compare and contrast the hormonal control of amphibian metamorphosis with insect metamorphosis. 8
- (b) Explain the various types of placenta on histological basis in mammals, with well labelled diagrams. 7
5. (a) Explain various mechanisms of Regeneration seen in animals. Discuss the process of limb regeneration in salamanders in detail. 8
- (b) Trace the sequence of events taken up during the process of *in vitro* fertilization. 7
6. Write notes on (any *three*) : 3×5=15
- (a) Slow block to polyspermy
- (b) Egg membranes
- (c) Amniocentesis
- (d) Embryonic stem cells.