

- (b) Define fate map. Explain different methods of preparing a fate map. Draw well labelled diagrams of fate map of frog and chick blastula. (6)
5. (a) Describe the mechanism of fertilization in detail. Add a note on the difference between external and internal fertilization with examples. (9)
- (b) What is aging? Enumerate various causes/theories of aging. (6)
6. Write short notes on any three of the following:
(3×5=15)
- (a) Embryonic induction
- (b) Hormonal control of metamorphosis in Amphibians
- (c) Embryonic stem cell and therapeutic cloning
- (d) Types of eggs based on distribution and amount of yolk

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4107

H

Unique Paper Code : 2232012402

Name of the Paper : DSC-Developmental
Biology

Name of the Course : **B.Sc. (H) Zoology-UGCF**

Semester : IV - NEP

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **any four** questions including **Question No. 1** which is compulsory.
3. Draw well-labelled diagrams wherever necessary.

1. (a) Define the following: (4)

(i) Gray crescent

(ii) Compensatory regeneration

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- (iii) Epiboly
- (iv) Capacitation
- (b) Distinguish between the following (any two):
(2×2=4)
- (i) Amnion and mosaic development
- (ii) Involution and invagination
- (iii) Totipotency and pluripotency
- (c) Match the following: (2)
- | | |
|-------------------|-------------------|
| (i) Louis Brown | (a) Aristotle |
| (ii) Teratogen | (b) Fate maps |
| (iii) Walter Vogt | (c) IVF |
| (iv) Epigenesis | (d) Rachel Carson |
- (d) Expand the following abbreviations: (3)
- (i) FAS
- (ii) ICSI
- (iii) NIMZ

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- (e) Name the germ layer from which each of the following is derived: (2)
- (i) Epidermis
- (ii) Thyroid
- (iii) Vertebrae
- (iv) Pancreas
2. (a) What are three different types of regeneration and explain epimorphic regeneration in detail with the appropriate diagram. (9)
- (b) Explain the effect of various chemicals and drugs on embryonic development (6)
3. (a) What is placenta and its role in embryonic development? Describe different types of placenta based on the villi distribution and histology with suitable examples and diagram. (9)
- (b) Discuss the process of IVF and amniocentesis and add a note on its merits and demerits (6)
4. (a) Enumerate different morphogenetic movements involved in gastrulation. Explain the process of gastrulation in frog. (9)

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