

10/5/19

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[This question paper contains 4 printed pages]

Your Roll No. :

Sl. No. of Q. Paper : **2288** **IC**

Unique Paper Code : 32231601

Name of the Course : **B.Sc. (Hons.) Zoology**

Name of the Paper : Developmental Biology

Semester : VI

Time : 3 Hours

Maximum Marks : 75

Instructions for Candidates :

- (a) Write your Roll No. on the top immediately on receipt of this question paper.
- (b) Attempt **five** questions including question **No.1** which is compulsory.
- (c) Attempt all parts of a questions together.

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

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- (i) Delamination
- (ii) Symmetry
- (iii) Capacitation

P.T.O.

- (iv) Morphogen
- (v) Blastema
- (vi) Amphimixis
- (b) Distinguish between (any **four**) : $4 \times 2 = 8$
 - (i) Epiboly and Emboly
 - (ii) Fertilizin and Antifertilizin
 - (iii) Epigenesis and Preformation
 - (iv) Monospermy and Polyspermy
 - (v) Epimorphosis and Morphallaxis
- (c) Indicate the exact location and function of each of the following : 3
 - (i) Sertoli Cells
 - (ii) Yolk Plug
 - (iii) Theca interna
- (d) Expand the following abbreviations : 3
 - (i) ART
 - (ii) ICM
 - (iii) JH
- (e) Give contribution of the following scientists in the field of developmental biology : 4
 - (i) W. Vogt
 - (ii) Wilhelm Roux
 - (iii) Hans Spemann
 - (iv) C. Waddington

- (f) Name the germ layer from which each of the following is derived : 4

- (i) Retina
- (ii) Kidney
- (iii) Liver
- (iv) Dermis

- 2. (a) Define placenta and classify on the histological basis with diagrams. 6
- (b) What are the various causes of ageing ? Describe in detail, any **two**. 6
- 3. (a) Differentiate between pre-metamorphosis and post-metamorphosis. Discuss hormonal control in different phases of amphibian metamorphosis. 6
- (b) Explain embryonic induction and enumerate the functions of primary organizer. 6
- 4. (a) Describe various gastrulatory movements with reference to gastrulation in chick. 6
- (b) Illustrate the process of fertilization, explaining in brief, the various changes taking place in zona pellucida. 6

5. (a) Describe the process of spermeiogenesis, with the help of suitable diagrams. 6
- (b) What are the properties of stem cells ? Enumerate different types of stem cells and their application in regenerative medicine. 6
6. (a) Describe, with diagrams, the formation and functions of extraembryonic membrane in birds. 6
- (b) Give examples of teratogens and describe their effect on human embryonic development. 6
7. Write short notes on any **three** of the following :
3×4=12
- (a) Fate maps
- (b) Types of blastula
- (c) Amniocentesis
- (d) Regeneration in Hydra