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- (b) How do morphogen gradients develop? What is their role in development? Discuss. (9,6)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1704 L

Unique Paper Code : 3182014801

Name of the Paper : Developmental Biology

Name of the Course : **B.Sc. (H) Biomedical Sciences**

Semester : VIII (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. Question No. **1** is compulsory.
3. Attempt **four** questions in all.
4. Subparts of the questions should be attempted together.
5. Draw illustrations or diagrams wherever necessary.

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1. (a) Define (1×3=3)

(i) Genomic Equivalence

(ii) Totipotency

(iii) Artificial Insemination

(b) Expand (1×2=2)

(i) GIFT

(ii) PGD

(c) Differentiate between (2×3=6)

(i) Myogenesis and Osteogenesis

(ii) Mosaic and regulative development

(iii) Determination and Differentiation

(d) State True or False and justify : (2×2=4)

(i) Cells of the blastocyst are totipotent

(ii) Stem cells undergo asymmetric division

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2. Write short notes on : (5,5,5)

(a) HOX genes

(b) Prevention of polyspermy

(c) Causes of infertility

3. (a) Formation and differentiation of the Neural tube, Neural crest, and complete nervous system.

(b) Explain how the three primary germ layers are formed. (9,6)

4. (a) Which are the endodermal structures. Explain the formation of the digestive system.

(b) Explain the principle of Zygote Intrafallopian Transfer during assisted reproduction. (9,6)

5. (a) Illustrate

(i) Neural Crest Formation

(ii) Heterophilic and homophilic binding

(iii) Extraembryonic membranes

P.T.O.