

Roll No. ....

Total Pages : 2

**CMDQ/M-24**

**5606**

## **DEVELOPMENTAL BIOLOGY**

Paper–M–Z–401

Time Allowed : 3 Hours]

[Maximum Marks : 80

**Note** : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

### **Compulsory Question**

1. Explain the following questions : 8×2=16

- |                                 |                    |
|---------------------------------|--------------------|
| (i) Fate maps.                  | (ii) Gastrulation. |
| (iii) Cytoplasmic determinants. | (iv) Delamination. |
| (v) Teratogenesis.              | (vi) Bicoid.       |
| (vii) SRY gene.                 | (viii) Allometry.  |

### **UNIT–I**

2. Give a comparative account of Cleavage pattern in vertebrates. How yolk determines the type of Cleavage?  
16

3. Write short notes on the following :

- |  |   |
|--|---|
| (a) Developmental patterns of Metazoans. | 8 |
| (b) Mesoderm and Endoderm development.   | 8 |

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### **UNIT–II**

4. Write a detailed note on proximate tissue interaction. How sequential inductive interactions leads to eye formation?  
16
5. Explain briefly :
- |                                   |   |
|-----------------------------------|---|
| (a) Cell specification fate.      | 8 |
| (b) Body axis formation in birds. | 8 |

### **UNIT–III**

6. What is Programmed cell death and its types. Explain its mechanisms and significance in developmental biology.  
16
7. Briefly describe :
- |   |   |
|---|---|
| (a) Metamorphosis in insects.                             | 8 |
| (b) Temperature and Location dependent Sex determination. | 8 |

### **UNIT–IV**

8. Describe the Homeobox concept in Blood cell formation.  
16
9. Write short notes on the following :
- |  |   |
|--|---|
| (a) Environmental cues and its effects on development. | 8 |
| (b) Skeletal muscle regeneration.                      | 8 |

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