

[Time: - 2½ Hours]

[Marks: 75]

Please check whether you have got the right question paper.

- N.B:
1. All questions are compulsory.
 2. Figures to the right indicate full marks allotted to the question
 3. Draw neat labeled diagrams wherever necessary.

- Q. 1 a) Explain the concept of totipotency, using suitable examples of plant and animal cells 10
- OR**
- a) Using well labelled diagrams explain differentiation in neural crest cells. 10
- Q. 1 b) Using *Drosophila* as a suitable example explain what you understand by "Trans determination". 05
- OR**
- b) Using Hematopoiesis as a suitable example explain the different signaling factors. 05
- Q. 2 a) What are congenital abnormalities? Explain in detail the causes and effects of ANY TWO. 08
- OR**
- a) What are the different theories of aging? Explain any Two theories in detail. 08
- Q. 2 b) What are the types of Cancer studied by you? Explain the role of Oncogenes and Tumor Suppressor genes in cancer. 07
- OR**
- b) What in regeneration? What is its importance? Explain in detail how regeneration and wound Healing differ with the help of suitable diagrams. 07
- Q. 3 a) Discuss pain receptors and the management of pain. 08
- OR**
- a) Discuss structure of the Human eye. 08
- Q. 3 b) Give the structure of External and Middle Ear in Human. 07
- OR**
- b) Explain the Gustatory receptors and olfactory receptors. 07
- Q. 4 a) What do you understand by Short Term memory and long Term memory. 08
- OR**
- a) Discuss the Prion and Madcow as a disease. 08

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Q. 4 b) Explain how narcotic drugs affect the central Nervous system. 07

OR

b) What do you understand by abnormal behavior of the brain. 07

Q. 5 Write short notes on **(any THREE)** 15

- a) Segmentation genes in *Drosophila*.
 - b) Role of β globin gene in gene expression.
 - c) Totipotency with reference to carrot phloem.
 - d) Crossed Extensor Reflex.
 - e) Binocular vision.
 - f) Types of muscles.
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