

[Time: 2½ Hours]

[Marks:60]

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
  3. Draw neat labelled diagrams wherever necessary

- Q.1** Answer **any two** questions from the following:-
- a. Explain properties of genes. **06**
  - b. Describe fine structure of gene. **06**
  - c. Write a note on the product rule of combining probabilities. **06**
  - d. One gene-One enzyme hypothesis. **06**
- Q.2** Answer **any two** questions from the following:-
- a. Explain sex chromatin and X-inactivation. **06**
  - b. Describe XX males and XY females in human. **06**
  - c. Write a note on environmental control of sex determination in Bonellia. **06**
  - d. Discuss Non-Mendelian inheritance. **06**
- Q.3** Answer **any two** questions of the following:-
- a. Explain balance between selection and mutation. **06**
  - b. Describe effects of inbreeding. **06**
  - c. write a note on causes of environmental variation. **06**
  - d. Discuss additive gene action. **06**
- Q.4** Answer **any two** questions of the following:-
- a. Explain hormonal control of insect metamorphosis. **06**
  - b. Describe regeneration of salamander limbs. **06**
  - c. Write a note on primary embryonic induction. **06**
  - d. Discuss eversion and differentiation of imaginal discs. **06**
- Q.5** Write short notes on **any four** of the following:-
- a. Pseudoalleles **03**
  - b. Transposons **03**
  - c. Gynandromorphs in Drosophila **03**
  - d. Plasmids **03**
  - e. DNA markers **03**
  - f. Random genetic drift **03**
  - g. RBC **03**
  - h. senescence **03**