NB: All questions carry equal marks. All questions are compulsory. Illustrate your answers with neat diagrams wherever necessary

1. Write an account on:  
   a). Structural polymorphism in DNA  
   b). Nuclear pore complex

   **OR**

1. Write an account on:  
   a). Polygenic and multifactorial inheritance  
   b). Mendelian principles of inheritance

2. Describe:  
   a). Chromosome identification techniques  
   b). Numerical chromosomal disorders

   **OR**

2. Describe:  
   a). Chemical mutagenesis  
   b). Fluorescence in situ hybridisation

3. Write notes on:  
   a). Vectors in Recombinant DNA technology  
   b). Modified PCR techniques

   **OR**

3. Write notes on:  
   a). Amniocentesis  
   b). DNA fingerprinting and its applications

4. Describe:  
   a). Gene diversity in Immunoglobulins  
   b). Maxam and Gilbert method of Gene sequencing

   **OR**

4. Describe:  
   a). Mismatch and recombination repair mechanisms  
   b). Chromosomes and cancer

5. Write short notes on **Any three** of the following:
   a). Solenoid model  
   b). Sex chromatin  
   c). Southern blotting  
   d). DNA footprinting  
   e). Enzymes in DNA replication  
   f). Hybridoma technology