(3 Hours) **Total Marks: 80**

NB : (1) Question no. 1 is compulsory

(2) Attempt ANY THREE out of remaining questions

(3) Draw diagrams wherever necessary.

1. Write short notes on the following: **20**

a) Cot curves of DNA kinetics

b) RNA splicing

c) Post translational modification of proteins

d) Significance of operons

2. a) Explain the structure of the DNA double helix. **10**

b) Discuss the relationship between genes and polypeptides. **10**

3. a) Describe the roles of mRNA, tRNA and ribosomes in translation. **10**

b) Define FISH ? Write its applications? **05**

c) What is multiple allelism? Give an example. **05**

4. a) Define DNA mutation ? Discuss mutation caused by chemical mutagen and its repair process? **10**

b) Explain Down's syndrome . **05**

c) Define crossing over? What is its significance? **05**

5. a) Explain Mendel's experiment on garden pea plant? Based on his observations, which principles of genetics he stated? **10**

b) Why bacteria need tryptophan? How tryptophan operon is regulated? **10**

6. a) Describe Excision repair of DNA damage? **10**

b) Write differences between prokaryotic and eukaryotic Translation. **05**

c) Distinguish between 'σ' and 'θ' model of DNA Replication **05**
