2023

(May/June)

BIOCHEMISTRY

(Honours)

(Molecular Biology)

(BCHEM–602)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer *any* **four** questions

1. *(a)* Discuss in detail the experimental evidences that established DNA as the genetic material. 8

(b) Describe the different types of repetitive DNA sequences that exist in eukaryotic genome. 6

2. *(a)* Describe the organization of bacterial DNA. 6

(b) Briefly describe the different types of nucleic acid hybridization. 8

3. *(a)* What do you understand by semi-conservative and semi-discontinuous modes of replication? 4

   (b) Discuss the differences between prokaryotic and eukaryotic replication with the help of suitable illustrations. 10

4. *(a)* Describe the organization of the prokaryotic promoters using suitable illustrations. 4

   (b) Discuss the salient features of prokaryotic transcription with suitable illustrations. 10

5. *(a)* Briefly discuss, why is the genetic code a triplet code. 4

   (b) Discuss with the help of suitable illustrations, the mechanism of translation in prokaryotic system. 10

6. *(a)* Discuss how a gene of interest can be cloned. 8

   (b) Give the names of the cloning vectors which are used for the purpose of DNA cloning. 2

   (c) List out the applications of recombinant DNA technology. 4

7. Write short notes on any *four* of the following : 3½×4=14

   (a) Lac operon

   (b) Southern hybridization

   (c) Polymerase chain reaction

   (d) Klenow fragments

   (e) Ames test

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