2018

(April)

BIO-CHEMISTRY

(Honours)

(Molecular Biology)

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 experiments that establish DNA as the genetic material.

   (b) Describe the different types of repetitive DNA sequences with suitable examples.

   8+6=14

2. *(a)* What do you understand by DNA replication?

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

   4+10=14

3. *(a)* Describe a typical mRNA promoter in eukaryotes with the help of suitable diagram.

   (b) Discuss the mechanism of transcription in prokaryotes with the help of suitable illustrations. 5+9=

4. Illustrate the differences in translation in a prokaryotic and a eukaryotic system with the help of suitable diagrams.

5. *(a)* Describe the steps involved in gene cloning.

   (b) What are regulatory RNAs?

   (c) Explain the salient features of genetic code. 6+4+4=

6. Write notes on any *two* of the following : 7×2=

   (a) Wobble hypothesis

   (b) Application of recombinant DNA technology

   (c) Regulation of gene expression in prokaryotes

(Continued)

7. Compare and contrast any *two* of the following : 7×2=14

   (a) Lactose and tryptophan operons

   (b) PCR and RT-PCR

   (c) Gene and protein databases

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