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**RP-003-1015031** Seat No. _____

# B. Sc. (Biochemistry) (Sem. V) (CBCS) Examination

**February - 2019**

## Molecular Biology & Recombinant DNA Technology : Paper - 503

**Faculty Code : 003**

**Subject Code : 1015031**

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

**1** (A) Objective Type Questions : **4**

(1) Who proved that DNA replication is semi-conservative in nature?

(2) Define Replisome.

(3) What is ARS ?

(4) What is the role of DNA gyrase in DNA replication?

(B) Answer in brief : (Any **One** out of two) **2**

(1) What are Okazaki fragments?

(2) Define Primers.

(C) Answer in detail : (Any **One** out of two) **3**

(1) Enlist the name of enzymes involved in DNA replication and their role in brief.

(2) Explain the semi conservative mode of replication.

(D) Write a note on : (Any **One** out of two) **5**

(1) Explain mechanism of Replication in Prokaryotes.

(2) Compare (similarities and differences) between Prokaryotes and Eukaryotes.

**2** (A) Objective type questions : **4**

(1) Define antisense strand.

(2) What is TATA box?

(3) Write any two inhibitors of transcription.

(4) What are Exons?

(B) Answer in brief : (Any **One** out of two) **2**

(1) Draw the figure of promoter region in eukaryotes.

(2) Explain alternative splicing.

(C) Answer in detail : (Any **One** out of two) **3**

(1) Describe the structure of RNA polymerase.

(2) Write in brief about eukaryotic transcription mechanism.

(D) Write a note on : (Any **One** out of two) **5**

(1) Explain any two post translational modification mechanism in brief.

(2) Describe transcription in prokaryotes.

**3** (A) Objective Type Questions : **4**

(1) What are stop codons? Give examples.

(2) Who deciphered the Genetic Code?

(3) What is the shape of tertiary structure of t-RNA?

(4) What are anticodons?

(B) Answer in brief : (Any **One** out of two) **2**

(1) Explain the charging phenomenon of t-RNA.

(2) Why codons exist in triplet form?

(C) Answer in detail : (Any **One** out of two) **3**

(1) Explain wobble hypothesis.

(2) Draw and explain the structure of Lac operon.

(D) Write a note on : (Any **One** out of two) **5**

(1) Explain Trp Operon.

(2) Explain mechanism of elongation and termination processes of translation in prokaryotes.

**4** (A) Objective Type Questions : **4**

(1) What is point mutation?

(2) List the types of mutagens.

(3) Define mis-sense mutation.

(4) What are carcinogens. Give examples.

(B) Answer in brief : (Any **One** out of two) **2**

(1) Write the difference between frameshift mutation and deletion.

(2) What are inter-calating agents ?

(C) Answer in detail : (Any **One** out of two) **3**

(1) Explain AMES test.

(2) Correlate Mutagenecity & Carcinogenecity.

(D) Write a note on : (Any **One** out of two) **5**

(1) Explain UV repair system in E.Coli.

(2) Explain molecular basis of mutation.

**5** (A) Objective type questions : **4**

(1) What is F factor?

(2) Define Transposons.

(3) What are molecular scissors?

(4) What is conjugation?

(B) Answer in brief : (Any **One** out of two) **2**

(1) Distinguish between Transformation and Transduction.

(2) What is competence?

(C) Answer in detail : (Any **One** out of two) **3**

(1) Explain DNA methylation.

(2) Describe in brief gene cloning in bacteria.

(D) Write a note on : (Any **One** out of two) **5**

(1) Explain conjugation in detail.

(2) Write the applications of r-DNA technology.

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