

V/ BIO-TECH (v)

2014

(5th Semester)

BIOTECHNOLOGY

Paper No. : BT-V

(**Molecular Biology**)

Full Marks : 55

Time : 2 hours

(PART : B—DESCRIPTIVE)

(Marks : 35)

*The figures in the margin indicate full marks
for the questions*

Answer **all** questions

1. Describe the Hershey-Chase experiment for confirming DNA as genetic material. 7

Or

Explain the organization of genome in eukaryotes.

2. Elaborate on the mechanism of DNA replication in prokaryotes. 7

Or

Describe briefly the mechanism of DNA replication in eukaryotes.

G15—100/170a

(Turn Over)



3. Describe transcription in prokaryotes. 7

Or

Explain the post-transcriptional modifications of RNA in eukaryotes.

4. Explain the process of translation in prokaryotes. 7

Or

What are genetic codes? Explain the salient features of genetic code. 1+6=7

5. What is DNA damage? Elaborate on any two DNA repair mechanisms. 7

Or

What is 'mutation'? Explain the different types of mutation.

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(5th Semester)

BIOTECHNOLOGY

Paper No. : BT-V

(Molecular Biology)

(PART : A—OBJECTIVE)

(Marks : 20)

The figures in the margin indicate full marks for the questions

SECTION—A

(Marks : 5)

Put a tick (✓) mark against the correct answer in the brackets provided : 1×5=5

1. Nucleosides are made up of

- (a) sugar and nitrogenous base ()
- (b) sugar, nitrogenous base and phosphate group ()
- (c) nitrogenous base and phosphate group ()
- (d) None of the above ()

2. The enzyme responsible for synthesis of new DNA strand in replication is

(a) topoisomerase ()

(b) polymerase ()

(c) helicase ()

(d) RNase ()

3. Which of the following is an example of post-transcriptional modification of RNA?

(a) Splicing ()

(b) Capping ()

(c) Polyadenylation ()

(d) All of the above ()

4. Which of the following is a start codon?

(a) UAG ()

(b) UAA ()

(c) AUG ()

(d) UGA ()

5. Ames test is

(a) a method which uses bacteria to test whether a given chemical can cause cancer ()

(b) a method which uses virus to test whether a given chemical can cause cancer ()

(c) a method which uses bacteria to test whether a given chemical can cause AIDS ()

(d) None of the above ()

(4)

SECTION—B

(Marks : 15)

Write short notes on the following :

3×5=15

1. Central dogma of molecular biology

2. Function of topoisomerase

5. Mutagen

- (a) Splicing
- (b) Replication
- (c) Translation
- (d) Transcription

3. Which of the following is an example of post-transcriptional modification of RNA?

- (a) Splicing
- (b) Replication
- (c) Polyadenylation
- (d) All of the above

3. RNA splicing

Function of topoisomerase
(Marks 15)

Write short notes on the following

1. Central dogma of molecular biology

4. Role of tRNA in translation