

# **IV / BIO-CHEM (iv)**

**2014**

**( 4th Semester )**

**BIOCHEMISTRY**

**Paper No. : BC-4**

**( Molecular Biology )**

*Full Marks : 55*

*Time : 2 hours*

**( PART : B—DESCRIPTIVE )**

**( Marks : 35 )**

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

- 1. (a) Explain the mechanism of DNA replication in bacteria.**

**7**

**Or**

- (b) Write short notes on :**

**3½+3½=7**

- (i) DNA polymerases**
- (ii) Evidence for DNA as genetic material**

**14G—100/477a**

**( Turn Over )**

2. (a) Explain the mechanism of transcription in prokaryotes. 7

Or

$$3\frac{1}{2} + 3\frac{1}{2} = 7$$

- (b) Write short notes on :

- (i) Promoters
- (ii) Polyadenylation

3. (a) What is genetic code? State the basic features of genetic code. 2+5=7

Or

$$3\frac{1}{2} + 3\frac{1}{2} = 7$$

- (b) Write short notes on :

- (i) Wobble hypothesis
- (ii) Lac operon

4. (a) Describe the assembly of ribosomes and steps involved in the initiation of protein translation in prokaryotes. 7

Or

- (b) Write short notes on :

$$3\frac{1}{2} + 3\frac{1}{2} = 7$$

- (i) A and P sites
- (ii) 70S initiation complex

5. (a) Explain the methods of gene cloning. 7

Or

- (b) Write short notes on :

$$3\frac{1}{2} + 3\frac{1}{2} = 7$$

- (i) Restriction endonucleases
- (ii) Monoclonal antibodies

★ ★ ★

## IV / BIO-CHEM (iv)

2014

( 4th Semester )

### BIOCHEMISTRY

Paper No. BC-4

( Molecular Biology )

( PART : A—OBJECTIVE )

( Marks : 20 )

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

Answer **all** questions

#### SECTION—A

( Marks : 5 )

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

1. During DNA replication, the leading strand proceeds in 5' – 3' direction

- (a) discontinuously (    )
- (b) continuously (    )
- (c) Both (a) and (b) (    )
- (d) None of the above (    )

( 2 )

2. The enzyme which is attached to the DNA for the synthesis of a short RNA primer during the initiation of bacterial DNA replication is

(a) DNA primase ( )

(b) RNA primase ( )

(c) tag polymerase ( )

(d) helicase ( )

3. The reason for the availability of only 20 amino acids specified from 64 different triplet codes is due to

(a) anticodon ( )

(b) primers ( )

(c) degeneracy ( )

(d) tRNA ( )

4. In prokaryotic mRNAs, the conserved 8-13 nucleotide sequences located in upstream of the first codon to be translated is known as

(a) Shine-Dalgarno sequence ( )

(b) terminating sequence ( )

(c) elongation region ( )

(d) None of the above ( )

5. Restriction enzymes cut a recognition sequence at

(a) one end ( )

(b) both ends ( )

(c) Both (a) and (b) ( )

(d) None of the above ( )

( 4 )

**SECTION—B**

( Marks : 15 )

Write short notes on the following :

3×5=15

1. Okazaki fragments

( 8 )

**2. Reverse transcriptase**

( 6 )

**3. Overlapping genes**

**IV/BIO-CHEM (iv)/477**



( 7 )

#### 4. Charged tRNA

( 8 )

8. Plasmide

\*\*\*

14G-100/477

IV/BIO-CHEM (IV)