

Total No. of Printed Pages—3

4 SEM TDC BOTH (CBCS) C 8

2 0 2 2

(June/July)

BOTANY

(Core)

Paper : C-8

(**Molecular Biology**)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Choose the correct answer of the following :

1×5=5

- (a) Hydrogen bonding in DNA occurs between the—Bases/Deoxyribose sugars/
Ribose sugars/Phosphate molecules.
- (b) Enzyme necessary for transcription is—DNA polymerase/RNA polymerase/
RNA ase/Endonuclease.

(2)

- (c) The functional unit of gene which specifies synthesis of one polypeptide is known as—Racon/Muton/Codon/Cistron.
- (d) Initiation codon in higher plants is—UAG/AUG/AGU/GUA.
- (e) The term 'gene' was given by—T. H. Morgan/Mendel/W. L. Johannsen/Hugo de Vries.

2. Write briefly on the following : $4 \times 3 = 12$

- (a) Central dogma
- (b) RNA priming
- (c) DNA denaturation and renaturation

3. Define genetic material and briefly describe its properties. Describe any one experiment which clearly showed that DNA is the genetic material. $1+3+8=12$

Or

How Watson and Crick modify the view regarding the chemical nature of gene? Give an account of the double-helix structure of DNA with the help of suitable diagram.

$3+7+2=12$

(3)

4. "DNA replication is semi-conservative and bidirectional." Discuss the experimental evidence in favour of this statement. 12

Or

Write explanatory notes on the following :

$6 \times 2 = 12$

- (a) DNA polymerase—I
- (b) Rolling circle replication

5. Define Operon. Explain the operon model of gene regulation using lac operon of *E. coli* as an example. $2+10=12$

Or

Describe the mechanism of protein synthesis in a prokaryote cell and point out the role of the different RNAs in this process. 12
