Total No. of Printed Pages—3

4 SEM TDC BOTH (CBCS) C 8

2022

(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.

(c) The functional unit of gene which specifies synthesis of one polypeptide is known as—Recon/Muton/Cistron/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 : 4×3=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

(Continued)

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 : 6×2=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

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