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4 SEM TDC BOTH (CBCS) C 8

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(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—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 : 4×3=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 :

6×2=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
