

**2024/TDC (CBCS)/EVEN/SEM/
BTCHCC-602T/010**

TDC (CBCS) Even Semester Exam., 2024

BIOTECHNOLOGY

(6th Semester)

Course No. : BTCHCC-602T

(Genomics and Proteomics)

Full Marks : 50

Pass Marks : 20

Time : 3 hours

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

UNIT—I

1. Answer any two of the following questions :

2×2=4

- (a) Define genomics.
- (b) Write a note on pyrosequencing.
- (c) Give a brief account of genome sequence assembly software.

(2)

2. Answer any *one* of the following questions : 6

- (a) Describe Maxam and Gilbert method of DNA sequencing. Add a note on Sanger's method. 3+3=6
- (b) Give a detailed account of shotgun and hierarchical methods of genome sequencing. 3+3=6

UNIT—II

3. Answer any *two* of the following questions : 2×2=4

- (a) What is NCBI genome?
- (b) Write a brief note on ENSEMBL.
- (c) Give a short account of VISTA.

4. Answer any *one* of the following questions : 6

- (a) Describe web-based servers and softwares for genome analysis.
- (b) Give a detailed account of selected model organisms' genome and databases.

(3)

UNIT—III

5. Answer any *two* of the following questions : 2×2=4

- (a) Write a note on short-range interactions.
- (b) Give a brief account of electrostatic forces.
- (c) Write about van der Waals' interactions.

6. Answer any *one* of the following questions : 6

- (a) Write a note on protein structure. Give a brief account of chemical properties of proteins. 3+3=6
- (b) Give an account of hydrogen bonds. Add a note on hydrophobic interactions. 3+3=6

UNIT—IV

7. Answer any *two* of the following questions : 2×2=4

- (a) Write about sedimentation analysis.
- (b) Write a note on gel filtration.
- (c) Give a short account of Native PAGE.

(4)

8. Answer any *one* of the following questions : 6

- (a) Give an illustrated account of SDS-PAGE.
- (b) Write an explanatory note on Edman degradation.

UNIT—V

9. Answer any *two* of the following questions :

2×2=4

- (a) Write about reproducibility of 2D-PAGE.
- (b) How are samples prepared for 2D-PAGE?
- (c) Write a note on mass spectrometry-based methods for protein identification.

10. Answer any *one* of the following questions : 6

- (a) Define proteomics. Give a detailed account of analysis of proteomes. 1+5=6
- (b) Describe *de novo* sequencing using mass spectrometric data. 6

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