

M.Sc. Semester-II (CBCS Scheme) Examination
BIOINFORMATICS
(Biochemistry and Biophysics)
Paper-V

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) All questions are compulsory and carry equal marks.
(2) Draw suitable diagrams wherever necessary.

1. (a) Why water is called universal biological solvent ? 5
(b) Give the structure and functions of :
(i) Peptidoglycans.
(ii) Glycoproteins. 6
(c) Write in brief about phospholipids. 5

OR

- (p) Explain the following :
(i) Concept of osmolarity
(ii) Water relationship. 6
(q) What are oligosaccharides ? Give their biological importance. 5
(r) Explain the structure and function of sphingolipids. 5
2. What is Ramchandran plot ? Give its significance in identifying the secondary structure of proteins. 16

OR

- Explain in detail the double helical structure of DNA; describe its various forms. 16
3. Write in brief :
(a) Prokaryotic and eukaryotic transcription. 6
(b) Salient features of genetic code. 4
(c) Regulation of lac operation. 6

OR

- (p) Translational machinery, its role and significance. 6
(q) Genetic code - Wobble hypothesis. 4
(r) Process of transcription. 6
4. What is centrifugation ? Give the basic principles and laws of sedimentation. 16

OR

- Define viscosity and give applications and different methods for measurement of viscosity. 16
5. Give the principle and applications of following :
(a) X-ray Diffraction. 4
(b) Raman Spectroscopy. 4
(c) IR Spectroscopy. 4
(d) Mass Spectroscopy. 4

OR

- (p) Optical rotatory dispersion. 4
(q) ESR Spectroscopy. 4
(r) N.M.R. Spectroscopy. 4
(s) U.V. Spectroscopy. 4

