

2014

M.Sc.

3rd Semester Examination

BIOCHEMISTRY

PAPER—BIC-301

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

1. Answer any *five* questions from the following : 5×2
- (a) Define Raman scattering.
 - (b) On what basis a protein can be separated through ion-exchange chromatography.

(Turn Over)

- (c) State the difference between Precipitation and agglutination reaction.
 - (d) What do you know about radiation sources of IR spectrophotometer ?
 - (e) Why does 1, 3 butadiene possess at higher λ_{max} value than that of ethane ?
 - (f) What is intrinsic viscosity ?
 - (g) What do you mean by recombinant vaccine ?
 - (h) Why and when pulsed field gel electrophoresis is more preferable than agarose gel electrophoresis ?
2. Answer any *two* questions from the following : 2×5
- (a) Briefly discuss the difference between UV-Vis spectroscopy and CD - spectroscopy.
 - (b) Describe briefly the working principle and instrumentation scheme of HPLC.
 - (c) How does proteins separated by DISC electrophoresis and state its important biological applications.
 - (d) What is HAT selection ? State the role of nucleotide biosynthesis over HAT selection.

2+3

3. Answer any *two* questions from the following : 2×10

(a) Discuss the basis principle and application of NMR spectroscopy in structure determination of biological macro molecules.

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(b) Describe the different techniques used for sample preparation in electron cryomicroscopy. State the importance of electron cryomicroscopy.

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(c) Describe for the Pelleting of the microsomal fraction from a liver homogenate an ultracentrifuge is operated at a speed of 45000 r.p.m. what is the angular velocity 'w' in radians per second? What should be the time required to isolate Microsome from rat liver tissue.

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(d) Write down the principle of density gradient centrifugation.

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