

2012

M.Sc.

1st Semester Examination

BIOCHEMISTRY

PAPER—BIC-102

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.

Group—A

1. Answer any five from the following questions : 5×2
- (a) What do you mean by vander Waal's force? State the importance of vander Waal's force. 2
- (b) Write down the mechanism of formation of sigma bond. 2
- (c) Write down the relation between two radioactive units 'Curie' and 'Becquerel'? 2

(Turn Over)

- (d) Define 'zero point energy'. 2
- (e) What do you mean by exergonic and endergonic reaction? 2
- (f) What is 'intrinsic viscosity'? 2
- (g) State the importance of coupling reaction. 2
- (h) Why does water wet the surface, but, mercury does not? 2

Group—B

Answer any *two* from the following questions : 2×5

2. Explain the biological application of First and Second law of thermodynamics. 5
3. What is relative centrifugal force? How can different cell organelles and a cell be separated by ultracentrifugation? 1+4
4. Briefly discuss the variation of IR spectra due to the presence of H-bonding and resonance. 5
5. Discuss the comparative study on IR spectroscopy and Raman spectroscopy. 5

Group—C

Answer any two from the following questions : 2×10

6. Define viscosity coefficient and surface tension. State the application of viscosity coefficient in biological system. How does surface tension of a liquid vary with temperature ?

4+3+3

7. Write short notes on Nuclear fission and fusion reaction with respect to binding energy.

5+5

8. Write down the working principles of GM counter and scintillation counter to detect radioactivity.

5+5

9. What are the primary condition for a nucleus to show NMR spectroscopy ? Briefly discuss the working principle of 'C-NMR' spectroscopy.

3+7