2013
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.

1. Answer any five from the following questions : 5×2
   (a) Define 'chromophore' and 'auxochrome'.
   (b) What is standard free energy change?
   (c) What is Phosphoryl Group Transfer Potential?
   (d) What do you mean by coupling reaction?
   (e) Distinguish between radioactive reaction and chemical reaction.
   (f) What are meant by C^{14} and N^{15} nuclei?
   (g) How does atomic orbital differ from molecular orbital.
   (h) Show the relationship between density and viscosity of a liquid.

Answer any two from the following questions : 5×2

2. State the law of radioactive disintegration. Derive the mathematical expression of 'Half life Period' of a radioactive element.

1+4

(Turn Over)
3. Which type of nucleus will show NMR spectrum? Briefly discuss the shielding and deshielding effects in NMR spectra.

4. Explain redox potential. State the role of Mg$^{2+}$ during ATP hydrolysis.

5. Briefly discuss the working principle of mass spectroscopy.

Answer any two from the following questions: 2×10


8. Write short notes on: (any two)
   (i) Analytical ultracentrifugation.
   (ii) Flame photometer;
   (iii) HPLC;
   (iv) Fluorescence & Phosphorescence.

9. What is surfactant? Name one biological surfactant and mention its function. On which factors, does the viscosity of a protein solution depend?

C/14/M.Sc./1st Seme./BIC-102