55012 Seat No. _____

M. Sc. (Part - I) Examination

April / May – 2003

Life Science : Paper - I

(Physical & Biochemical Principles)

Time : **3** Hours] [Total Marks : **100**

Instruction : All questions carry **equal** marks.

1 (a) Discuss ionic theory.

(b) Explain Ionization constants.

(c) Calculate the pH value of a solution whose hydrogen ion concentration is 0.005 g/L.

OR

1 (a) Explain equivalent and molecular conductivity.

(b) How is cell constant determined ?

(c) Explain the electrodes used in potentiometric titrations.

2 (a) Explain ionic and molecular reactions.

(b) Discuss first order reaction.

(c) Show that the time taken for the completion of the same fraction of change is indendent of initial concentration.

OR

2 (a) What are colloidal solutions ?

(b) Discuss the properties of colloidal solutions.

(c) Explain cataphoresis.

3 (a) Discuss the Second Law of Thermodynamics.

(b) Explain free energy.

OR

3 (a) Discuss the carnote cycle.

(b) Explain Enthalpy and its importance.

4 Write notes on any **three** of the following :

(a) Optical Isomerism

(b) Kilani Synthesis

(c) Mutarotation

(d) Synthesis of Parine

(e) Catabolism

(f) Cyclic structure of glucose.

5 (a) Discuss the primary and secondary structure of Amino acid.

(b) Explain phospholipids.

OR

5 Write note on :

(a) Saponification number

(b) Acetyl number

(c) Urea cycle.

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