2012
B.A./B.Sc. (Hons.) Fifth Semester
Chemistry
Paper – VI: Physical Chemistry   A

Time allowed: 3 Hours   Max. Marks: 45

NOTE: *Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I -IV.*

x-x-x

UNIT – 1

I.   a) Explain Collision number and Collision frequency. How they are related with each other.

b) Discuss general equation of transport. Write various properties of gases.   (4,5)

II. a) What is the expression for Kinetic theory of thermal conductivity? Derive it.

b) What do you mean by Flux? Explain it.   (6,3)

UNIT – II

III. a) How gas viscosity is measured? Derive an expression for kinetic theory of gas viscosity.

b) Write various laws of diffusion.   (6,3)

IV. a) Derive an expression for Kinetic theory of diffusion in gases.

b) Tell about theory of diffusion in liquids.   (5,4)

UNIT – III

V.   Discuss the following in detail:-

a) Helmholtz model of electric double layer

b) Butler Volmer Equation   (5,4)

VI. Explain the following:-

a) Corrosion

b) Polarography   (4,5)

P.T.O.

UNIT – IV

VII.   a) What are Laplace and Kelvin equations? Derive them.

       b) Explain various types of interfaces.   (6,3)

VIII.   Write notes on the following:-

       a) Thermodynamics derivation of Gibbs Adsorption equation

       b) Surface films on liquids   (5,4)

UNIT – V

IX.   Attempt the following in brief:-

       a) Fuel cells

       b) Diffusion coefficient

       c) Capillary rise and surface tension   (3x3)

x-x-x