Exam.Code:0040
Sub. Code: 0997

2071
B.Sc. (Hons.) Bio-Informatics
Second Semester
BIN-2005: Chemistry – II

Time allowed: 3 Hours Max. Marks: 60

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) What is Nernst equation? Give expression.

b) Explain second law of thermodynamics.

c) Elaborate quantum yield.

d) Define molecular spectroscopy.

e) Differentiate auxochrome and chromophore.

f) Explain symmetric and asymmetric stretching in IR with examples. (6x2)

UNIT – I

II. a) Discuss Hess's law of constant heat summation. Also explain its applications.

b) Derive expression for Van't Hoff reaction isotherm. (6,6)

III. a) Write a complete note on Corrosion and its prevention methods.

b) Derive an expression for the entropy of a mixture of ideal gases. (6,6)

IV. Write notes on the following:-

a) Henderson-Haselbach equation

b) Overvoltage and polarization

c) Relation between free energy change and equilibrium constant (3x4)

UNIT – II

V. Discuss the following in detail:-

a) Fluorescence and phosphorescence

b) Selection rules in infrared spectroscopy (6,6)

P.T.O.

VI. Explain the following:-

a) Absorption and emission spectroscopy

b) Beer Lamber's law

c) Extinction coefficient (5,3,4)

VII. a) Discuss in brief about rotational Raman and Rotational Vibrational spectra.

b) Discuss mechanism of nuclear spin-spin interaction in detail. (7,5)

x-x-x