SUBJECT CODE: CH/AC/GC33
B.Sc. DEGREE EXAMINATION, NOVEMBER 2009
BRANCH III - PHYSICS
THIRD   SEMESTER

REG.NO ……………………..

COURSE : ALLIED CORE
PAPER   : GENERAL CHEMISTRY I
TIME   : 30 MINUTES   MAX.MARKS : 30
SECTION – A   (30x1=30)
Answer all questions
Answer on the question paper itself:

I   Choose the correct answer:

1.   The highest packing factor is found in _____ type of crystals.
a) FCC   b) BCC   c) SC   d) both a and b

2.   The molar ionic conductance at infinite dilution for LiX is $89.2 \times 10^{-4}\ sm^2 mol^{-1}$.
What would be the molar ionic conductance of X^- ion if the molar ionic
conductance of Li^+ ion is $38.70 \times 10^{-4}\ sm^2\ mol^{-1}$?
a) 40.5×10^{-4} b) 50.5×10^{-4} c) 127.90   d) 89.2

3.   The pH of 0.01M $NaOH$ is
a) 2   b) 12   c) 1   d) 4

4.   Denaturation of a protein causes _____ in solubility.
a) increase   b) decrease
c) initial increase followed by a decrease   d) no change

5.   EDTA is a _____ ligand.
a) monodcndate   b) bidendate   c) tridendate   d) hexadendate

II   State true or false:

6.   Packing fraction is also called as atomic packing factor.
7.   Kohlrausch's Law deals with interionic effect.
8. $\alpha -$ aminoacids form yellow colour by reaction with ninhydrin.
9.   Glucose forms pink colour by Selivanoff's test.
10. Mg^{2+} is present in chlorophyll.

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III   Match the following :

11.	DNA	-	Sacrificial anode
12.	Protein	-	Hydrogen bonding
13.	Ostwald's dilution Law	-	230
14.	Space groups	-	Weak electrolytes
15.	*Zn*	-	Peptide bond

IV   Fill in the blanks:

16.   The unit cell of a crystal is _____.

17.   The Zwitter ionic form of glycine is _____.

18.   The unit of specific conductance is _____.

19.   The most stable form of RNA is _____.

20.   The metal ion present in Vit B_{12} is _____.

V   Give answer in a line or two :

21.   Define point group.

22.   Define transport number.

23.   Draw the Haworth structure of fructose.

24.   Define electro osmosis.

25.   Give any one method of inhibition of corrosion.

26.   Give example of Chelate.

27.   Write the types of RNA.

28.   What is the total number of Bravais lattices in SC ?

29.   Calculate the miller indices of crystal planes which cut through the crystal axes at (2a, 3b, c).

30.   Define isoelectric point.

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SECTION – B

ANSWER ANY FIVE QUESTIONS :   **5X6=30**

1.   Draw and explain the crystal structure of *CsCl*.

2.   Briefly discuss Debye-Huckel theory of strong electrolytes.

3.   Draw and explain the working principle of SCE.

4.   What are liquid crystals? Explain any two types of structure and applications.

5.   Explain the importance of amino acid sequence with an example.

6.   Describe the biological role of haemoglobin with its structure.

7.   Write short notes on denaturation and renaturation of DNA.

SECTION – C   **2X20=40**

ANSWER ANY TWO QUESTIONS:

8.   Calculate the packing factor for SC, BCC, FCC and hcp structures.

9.   Discuss the titration curves obtained in the titration of
        a) Strong acid with a strong base
        b) Strong acid with a weak base
        c) Mixture of HCl and CH_3COOH with $NaOH$.
        d) $AgNO_3$ against KCl .

10.   a) Draw and explain the double helical structure of DNA.
        b) Explain the charging and discharging process occurring in Lead storage battery
            with equation.

                                                            (10+10)

11.   a) Explain the classification of carbohydrates with examples.
        b) Draw and explain clover leaf model of t-RNA.

                                                            (10+10)

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