STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2004–05 & thereafter)

SUBJECT CODE: CH/AC/GC32
B.Sc. DEGREE EXAMINATION, NOVEMBER 2008
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 increase in equivalent conductance of a weak acid with dilution is due to
   a) decrease in ionic attractions b) increase in molecular attractions
   c) increase in degree of association d) increase in degree of ionization

2. Which of the following coordination compounds contain a non-transition metal ion?
   a) Haemoglobin b) chlorophyll c) vitamin B_{12} d) ferrocene

3. pH of a buffer solution can be calculated using
   a) Henderson's equation b) Ostwald's dilution law
   c) Kohlrausch law d) Debye-Huckel equation

4. Deficiency of Vitamin B_{12} causes
   a) pernicious anaemia b) Scurvy c) night blindness d) Rickets

5. Hypoglycemia refers to
   a) presence of excess of sugar b) lack of sugar
   c) absence of nucleic acids d) lack of vitamins

6. Which among the following is a covalent solid?
   a) diamond b) marble c) common salt d) iron

II Fill in the blanks:

7. The electrode potential of standard hydrogen electrode is assigned a value of _____
8. An example for basic buffer is _____.
9. The metal present in B_{12} is _____.
10. The unit of equivalent conductance is _____
11. CsCl belongs to _____ type of crystal lattice.
12. The pyramidine base present in RNA is _____.

..2

III Match the following :

13.	Cubic System	a) aldohexose
14.	$Hg.Hg_2Cl_2$(S) KCl solution	b) Glucose
15.	Charring takes place when heated with con.H_2SO_4	c) coordination no 6
16.	EDTA	d) strong electrolyte
17.	Ostwald dilution law	e) calomel electrode
18.	Fructose	f) weak electrolyte
		g) NaCl
		h) Ketohexose

IV State true or false :

19. The degree of dissociation for strong electrolytes is always nearly one.
20. Cellulose forms the raw material for the textiles and paper industries.
21. Haemoglobin is the most important agent for oxygen transport in the living system.
22. KCl belongs to bcc type of lattice.
23. Calomel is $HgCl_2$.
24. The fastest ion in aqueous medium is H_3O^+ ion.

V Give answer in a line or two :

25. What is osmosis?

26. Give the structural representation of haemoglobin.

27. Calculate the effective atomic number of Fe^{2+} in $[Fe(CN)_6]^{4-}$. Given atomic number of Fe is 26.

28. What is ninhydrin test?

29. Give an example for an irreversible cell.

30. What is the co-ordination number of cesium in cesium chloride?

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2004 –05 & thereafter)

SUBJECT CODE: CH/AC/GC32

B.Sc. DEGREE EXAMINATION, NOVEMBER 2008
BRANCH III - PHYSICS
THIRD SEMESTER

COURSE: ALLIED CORE
PAPER : GENERAL CHEMISTRY I
TIME : 2 HOURS **MAX.MARKS : 70**

SECTION – B

ANSWER ANY FIVE QUESTIONS : 5X10=50

1. What are liquid crystals? Discuss the types of liquid crystals and their applications.
2. Discuss the Debye-Huckel theory of strong electrolytes.
3. Discuss Waston-Crick model of the structure of DNA.
4. a) What is chelation? Explain with an example.
   b) Explain co-ordinate bond with an example. (5+5)
5. What is a buffer? Give an example. Explain the maintenance of pH in living systems.
6. Write notes on (a) miller indices (b) structure of diamond and graphite. (4+3+3)
7. a) What are reversible and irreversible cells. Give example.
   b) State and explain kohlrauch law. (6+4)

SECTION – C 1X20=20

ANSWER ANY ONE QUESTION:

8. a) Define unit cell, transport number
   b) What is the effect of dilution on specific conductance and equivalent conductance?
   c) Write note on lead storage battery, corrosion and prevention. (4+4+6+6)

9. a) Define Zwitter ion and ion electric point.
   b) Explain the biological role of Haemoglobin and Chlorophyll.
   c) Calculate the pH of 0.01N KOH solution.
   d) Draw the conductomeric titration cruves for
   (i) HCl Vs NaOH (ii) CH_3COOH Vs NaOH and explain.
   (4+6+3+4+3)