

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 2007

BRANCH III - PHYSICS
THIRD SEMESTER

REG.NO

COURSE : ALLIED CORE

PAPER : GENERAL CHEMISTRY I

TIME : 30 MINUTES

MAX.MARKS : 30

(30x1=30)

SECTION – A

Answer all questions

I Choose the correct answer:

- Coordinate bond is also called
a) polar b) semicovalent c) dative d) hydrogen bond
- Unit for specific conductance is
a) pm^2 b) mho cm c) pcm^{-1} d) mho cm^{-1}
- Metal ion in vit B₁₂ is
a) Cu b) Cr c) Co d) Ca
- Maximum void space is in
a) hcp b) fcc c) bcc d) simple cubic
- EDTA has a chelation of
a) 2 b) 4 c) 6 d) 8
- One of the following terms describes liquid crystal
a) mesomorphism b) isomerism c) poly morphism d) photo tropism
- Number of ions per unit simple cubic cell is
a) 1 b) 2 c) 3 d) 4
- pH of centimolar monoacidic base
a) 2 b) 12 c) 1 d) 13
- One of the following describes weak electrolyte only
a) Ostwald's dilution Law b) Kohlrausch's law
c) Debye – Huckel theory d) Arrhenius theory
- One of the following does not form a peptide bond
a) leucine b) valine c) phenylacetic acid d) p-amino benzoic acid
- Pick out the false statement: At the isoelectric point, Aminoacid shows
a) no electrical migration b) no conductance
c) no osmotic movement d) no change in pH

12. Mineral Mg is present in
 a) Haemoglobin b) Chlorophyll c) Oxy haemoglobin d) DNA
13. Porphyrin ring structure is present in
 a) Haemoglobin b) Vit B₁₂ c) DNA d) RNA
14. Potential of standard hydrogen electrode is
 a) -1 b) 0 c) +1 d) ± 0.5
15. Coordination number is 8 in the following crystal
 a) ZnS b) NaCl c) TiO₂ d) CsCl

II Match the following :

- | | |
|------------------------|-------------------|
| 16. Sachharide | a) Watson & Crick |
| 17. DNA | b) Debye & Huckel |
| 18. Strong electrolyte | c) Ostwald |
| 19. Weak electrolyte | d) Haworth |
| 20. pH | e) Sorenson |

III State true or false :

21. Transport no. of an ion is constant.
22. Miller indices may not be non-integral. (i.e) Fractional.
23. Transport number represents relative mobility of ions.
24. Equivalent & molar conductances of KCl are unequal.
25. Hypoglycemia is due to excess sugar.

IV Fill in the blanks:

26. pH of buffer is calculated by _____ equation.
27. A in EDTA represents _____.
28. KCl belongs to _____ system.
29. The Zwitter ion of glycine is written as _____.
30. Calomel electrode is a _____

V Give answer in a line or two :

31. Liquid crystal.
32. The bases present in DNA
33. Electrosmosis.
34. RNA
35. Mesomorphism.



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SECTION – B

ANSWER ANY FIVE QUESTIONS :

5X10=50

1. Write briefly on the structure of DNA. (10)
2. a) Discuss the effect of dilution on conductance.
b) Define & explain transport number. (6+4)
3. Write short notes on
a) Lead Storage battery b) Corrosion & its prevention (6+4)
4. Explain standard electrode potential & its applications. (4+6)
5. a) Explain denaturation (5)
b) Write the Haworth structure of glucose and sucrose. (5)
6. Explain the biological role of hemoglobin and Vit B₁₂. (5+5)
7. Describe a standard calomel electrode and how it is used to determine the pH of a solution. (10)

SECTION – C

1x20=20

ANSWER ANY ONE QUESTION:

8. a) Explain Debye-Huckel theory. (10)
b) Illustrate the importance of any one buffer in living systems. (5)
c) Define with example space lattice, point group. (5)
9. a) Define specific, equivalent & molar conductance & outline their determination. (10)
b) Explain conductometric titration of a) strong acid vs strong base
b) strong acid vs weak base c) weak acid vs strong base with the curves. (10)



