STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2011–12 and thereafter)
SUBJECT CODE: 11CH/AC/GC33

B.Sc. DEGREE EXAMINATION, NOVEMBER 2013
BRANCH III - PHYSICS
THIRD SEMESTER

REG.NO ……..

COURSE : ALLIED CORE
PAPER : GENERAL CHEMISTRY- I
TIME : 30 MINUTES **MAX.MARKS : 30**

SECTION – A
ANSWER ON THE QUESTION PAPER ITSELF:

Answer ALL the questions **(30 x 1 = 30 marks)**

I Choose the right answer:

1 Hybridization in diamond is
(a) sp (b) sp^2 (c) sp^3 (d) dsp^2

2 The percentage void in simple cubic system is
(a) 28 (b) 48 (c) 68 (d) 88

3 Unit of specific conductance is
(a) $ohm^{-1}\ cm^{-1}$ (b) $ohm\ cm^{-1}$ (c) $ohm^{-1}\ cm$ (d) ohm cm

4 Calomel electrode contains
(a) Ag (b) Hg (c) Li (d) Bi

5 Carbohydrates contain
(a) C, He, O (b) C, Hg, O (c) C, H, S (d) C, H, O

6 Colour obtained when iodine is added to starch is
(a) black (b) blue (c) green (d) yellow

7 Number of hydroxyl groups in glucose (open-chain) is
(a) 1 (b) 3 (c) 5 (d) 7

8 pH of neutral water is
(a) 7 (b) 0 (c) -7 (d) 14

9 The primary valency of Fe in $K_4[Fe(CN)_6]$ is
(a) 1 (b) 2 (c) 3 (d) 4

10 Central metal in vitamin B_{12} is
(a) Co (b) Mo (c) Po (d) Ho

...2

II Fill up the blanks:

11 The Miller index corresponding to the Weiss index 1 ∞ ∞ is _____.

12 Graphite has a _____ structure.

13 $t_+ + t_- =$ _____.

14 On dilution, the specific conductance _____.

15 Seliwanoff test on fructose gives_____ colour.

16 Ninhydrin is used to detect _____.

17 The base pair of thymine is _____.

18 According to Watson and Crick model DNA structure is a _____.

19 EAN of $K_4[Fe(CN)_6]$ is _____.

20 The metal present in _____ is magnesium.

III State whether the following statements are true or false:

21 CsCl has a bcc structure.

22 The E° of standard hydrogen electrode is 8.314 V.

23 Sucrose is a white coloured solid.

24 Temperature has no effect on proteins.

25 Ethylene diamine is a bidentate ligand.

IV Answer in a line or two:

26 Define liquid crystals.

27 State Kohlrausch law.

28 What is hypoglycemia?

29 What is electro-osmosis?

30 What is chelate effect?

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TIME : 2 ½ HOURS **MAX.MARKS : 70**

SECTION – B

Answer any FIVE questions: **(5 x 6 = 30 marks)**

1 Explain the structure of NaCl.

2 Explain the Debye-Hückel-Onsager theory.

3 How are carbohydrates classified?

4 Write a note on the structure and biological role of haemoglobin.

5 Explain the different crystal systems.

6 Write a note on corrosion and its prevention.

7 Explain denaturation and renaturation of proteins.

SECTION – C

Answer any TWO questions: **(2 x 20 = 40 marks)**

8 (a) Discuss the structure and uses of liquid crystals.
(b) Draw the Haworth structure of Glucose.
(c) Explain the structure of starch. (15 + 2+3)

9 (a) Discuss any three types of conductometric titrations
(b) Write anote on EDTA. (15 + 5)

10 (a) Discuss the function and structure of RNA.
(b) Discuss the effect of pH and temperature on living systems. (10 + 10)

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