STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2011 – 12 and thereafter)
SUBJECT CODE: 11CH/MC/IC34
B.Sc. DEGREE EXAMINATION, NOVEMBER 2013
BRANCH IV- CHEMISTRY
THIRD SEMESTER

REG.NO ……..

COURSE : MAJOR CORE
PAPER : INORGANIC CHEMISTRY-II
TIME : 30 MINUTES **MAX.MARKS : 30**

SECTION – A
ANSWER ON THE QUESTION PAPER ITSELF:
Answer all the questions

I Choose the correct answer: **(10x1= 10 marks)**

1. Which of the following compounds will form salt like hydrides?
   a) Ionic b) Covalent c) Interhalogen d) Co-ordination compounds

2. Which of the following methods is used to extinguish fire due to Sodium,
   a) Water b) Nitrogen gas
   c) Carbon dioxide d) Dry chemical

3. The low density of alkali metals is due to which of the following
   a) Atomic numbers b) Number of valence electrons
   c) Atomic size d) Reactivity

4. Identify the theory which is used to explain the geometry of a molecule from the following.
   a) Atomic theory b) VSEPR theory
   c) MO theory d) Kinetic theory

5. Caro's acid is
   a) H_2SO_5 b) $H_2S_2O_7$ c) $H_2S_2O_8$ d) $H_2S_2O_6$

6. Gypsum is used in the preparation of cement to
   a) impart strength to cement
   b) reduce the strength of the cement
   c) slow down undesirable sudden cooling of cement
   d) make cement efforescent

7. Hydrazoic acid is
   a) N_3H b) NH_2OH c) N_2H_4 d) $H_2N_2O_4$

8. The conversion of atmospheric nitrogen to nitrogen compounds is known as
   a) Solvay process b) Nitrogen fixation c) Electrolysis d) Haber process

9. $Si(OH)_4$ belong to which of the following category
   a) Oxoacid b) hydroxo acid c) aqua acid d) mineral acid

10. Identify in the following the alterative name for ore forming elements
    a) Halogens b) alkali metals
    c) alkaline earth metals d) chalcogens

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II Fill in the blanks: (10x1 = 10 marks)

11. _____ is a refractory material.
12. The type of hydride which an element forms depend on it's _____.
13. Compounds which have properties similar to halogens are known as _____.
14. Li^+ and H^- are _____.
15. Helium and Neon do not form _____ because they are too small.
16. _____ is isoelectronic with benzene.
17. The crystal structure of sodium chloride is_____.
18. Crown ethers and Cryptans are _____.
19. Gypsum is a raw material used for _____.
20. Silicones are _____.

III. Match the following: (5x1= 5 marks)

21. Ionic Hydrides	a. Inorganic Benzene
22. Neon	b. Salt like hydrides
23. Borazine	c. Allotropy of carbon
24. Graphite	d. Propellant
25. Hydrazine	e. Coloured sign boards

IV. Answer the following in a line or two: (5x1 = 5 marks)

26. Name any one application of heavy water.

27. Write an equation for the preparation of CH_4 from carbon.

28. Why xenon can be liquefied more easily than Helium?

29. Why is the boiling point of water higher than that of methanol?

30. Identify the oxidation state of nitrogen in the following molecules.
    a. N_2O_5 b. Ca_3N_2

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SECTION – B

Answer any five questions: **(5x6=30 marks)**

1. Name and classify the followings hydrides:
   (a) SiH_4 (b) NH_3 (c) AsH_3
   (d) $PdH_{0.9}$ (e) BaH_2 (f) HI

2. How is Lithium extracted from spodumene.

3. Explain the structure of B_2H_6.

4. Give the preparation, properties and structure of Boron nitride and Hydrazine.

5. Explain the terms
   a) Portland Cement and Curing of cement
   b) Allotropy and isomerism
   c) Peroxide and Super oxide.

6. Write a note on paints and enamels.

7. What are clatharates? Explain clatharate formation by noble gases.

SECTION – C **(2x20=40 marks)**

Answer any two questions:

8. a) Discuss the preparation, properties and uses of thionic acids and their structures.
   b) Write a note on classification of silicates. (12+8)

9. Describe the shape, highlighting the type of hybridization in each of the following compounds.
   (a) $XeOF_2$ (b) IF_7 (c) CI_2O (d) XeF_2 (e) BrF_3

10. a) Give a comparative account of nitrogen group elements with respect to oxides, hydrides and halides.
    b) Describe the process of extraction of Beryllium. (12+8)

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