

SUBJECT CODE: CH/MC/IC44
B.Sc. DEGREE EXAMINATION, APRIL 2008
BRANCH IV - CHEMISTRY
FOURTH SEMESTER

Reg. No

COURSE : MAJOR – CORE
PAPER : INORGANIC CHEMISTRY -II
TIME : 30 MINUTES

MAX. MARKS : 30

SECTION - A

TO BE ANSWERED ON THE QUESTION PAPER ITSELF.

ANSWER ALL THE QUESTIONS.

(30x1=30)

I. Choose the correct answer:

- PH_3 is an example of
a) Ionic hydride b) Covalent hydride c) Metallic hydride d) Polymeric hydride
- Water gas is a mixture of
a) CO and H_2 b) CO and N_2 c) H_2 and CH_4 d) CO and CO_2
- Amphibole is
a) An orthosilicate b) A cyclic silicate
c) An asbestos mineral d) An ultramarine mineral
- Zeolites are used as
a) Gem b) Ion exchanger c) Pigments d) Lubricant
- H_3PO_3 is
a) A monobasic acid b) A dibasic acid c) A tribasic acid d) A Neutral
- The molecular formula of Marshall's acid is,
a) H_2SO_3 b) $H_2S_2O_7$ c) $H_2S_2O_4$ d) $H_2S_2O_8$
- H_2O_2 is used as
a) Drying agent b) Oxidizing agent
c) Reducing agent d) Both oxidizing and reducing agent
- Ozone is
a) A compound of oxygen b) An allotrope of oxygen
c) An isomer of oxygen d) An isotope of oxygen
- An element which has ns^2np^6 configuration is
a) Li b) Ne c) Be d) B

10. Which of the following is not a noble gas
 a) Xe b) Rn c) H_2 d) He

II. Say true or false:

11. The boiling point of heavy water is $100^\circ C$.
 12. Tl^+ and Pb^{2+} ions are isoelectronic.
 13. Zircon is $ZrSiO_3$.
 14. Reaction of magnesium germanide with dilute hydrochloric acid gives germanes.
 15. Iodine is the most basic halogen.

III Match the following:

- | | |
|-----------------|--------------------------|
| 16. Lithium | a) Abrasive |
| 17. Diborane | b) Strong reducing agent |
| 18. Borazine | c) Lubricant |
| 19. Carborundum | d) Electron deficient |
| 20. Silicones | e) Inorganic benzene |

IV Complete the Balance the following equations:

21. $Ca + H_2O \rightarrow$
 22. $LiBH_4 + FeCl_3 \rightarrow$
 23. $NH_2OH + HNO_3 \rightarrow$
 24. $H_2SO_3 + [O] \rightarrow$
 25. $XeF_6 + H_2 \rightarrow$

V Fill in the blanks:

26. Spodumene is the ore of _____.
 27. Boron is diagonally related to _____
 28. The salts of hypophosphorous acid are called _____.
 29. Azoimide upon dissociation gives _____.
 30. The geometry of ClO_4^- is _____.



STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004-05 & thereafter)

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BRANCH IV - CHEMISTRY

FOURTH SEMESTER

COURSE : MAJOR – CORE

PAPER : INORGANIC CHEMISTRY -II

TIME : 2 ½ HOURS

MAX. MARKS : 70

SECTION – B

ANSWER ANY FIVE QUESTIONS:

(5x6=30)

1. What are ionic hydrides? Give any one method of their preparation and three properties.
2. Describe the preparation and structure of boron nitride.
3. Compare carbon group elements with respect to reactivity of tetrahalides and stability of hydrides.
4. What happens when Caro's acid reacts with
 - a) $AgNO_3$
 - b) KI
 - c) H_2O_2
5. Compare the properties of the hydrides of VI group elements.
6. Discuss the structures of chlorine heptoxide and chlorine monoxide.
7. Write short notes on "Clathrate Compounds".

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2x20=40)

8.
 - a) Explain the extraction of lithium metal from its silicate ores. (10)
 - b) Describe the structure and bonding of B_2H_6 . (10)
9.
 - a) Describe the extraction of radium from pitchblende. (10)
 - b) What are interhalogen compounds? Give the methods of preparation and structures of XY_5 and XY_7 type compounds. (10)
10. Write short notes on
 - a) Crown ethers
 - b) Cross – linked silicones
 - c) Structure of hydrozoic acid
 - d) Structure of Xenon oxytetrafluoride (5+5+5+5)
11.
 - a) Explain the classification of silicates with an example each.
 - b) How is hydrazine prepared from ammonia? Give its properties and structure.
 - c) Discuss the position of noble gases in the periodic table. (6+8+6)

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