

5/12/16



DOON UNIVERSITY, DEHRADUN
End Semester Examination, 5th December, 2016
School of Physical Sciences
Inorganic Chemistry
Course: CYC-201: Inorganic Chemistry-II

Time Allowed: 3 Hours.

Maximum Marks: 30

Note: Attempt All Questions

Section: A

(Marks: 10 Q × 1 = 10)

1. Naturally occurring compounds are known as
 - a) metalloids
 - b) minerals
 - c) hard solids
 - d) soft solids
2. Process of converting minerals in to oxides is called
 - a) smelting
 - b) reigning
 - c) roasting
 - d) bessemerization
3. Smelting is a process for
 - a) reduction of metal oxides
 - b) oxidation of minerals
 - c) oxidation of metals
 - d) melting of metals
4. Solids whose atoms arrange themselves in different forms are
 - a) isotopes
 - b) crystals
 - c) allotropes
 - d) amorphous
5. In graphite carbon atoms are arranged in layers of
 - a) pentagonal arrays
 - b) heptagonal arrays
 - c) octagonal arrays
 - d) hexagonal arrays

6. Which one is most non-metallic ?

- a) B
- b) Al
- c) Ga
- d) In

7. The *pseudohalide* ion among the following is

- a) Cl^-
- b) CN^-
- c) O_2^{2-}
- d) ClO_3^-

8. An oxoacid of sulphur is

- a) SO_3
- b) H_2S
- c) H_2SO_4
- d) SOCl_2

9. *Ortho*-phosphoric acid is

- a) dibasic
- b) tribasic
- c) tetrabasic
- d) none of the above

10. Which of the following statements is correct ?

- a) H^+ and Fe^{3+} are soft acids
- b) Cu^+ and Ag^+ are soft acids
- c) NH_3 is a hard acid
- d) F^- is a soft base

Section: B

(Marks: $4Q \times 2 = 8$)

11. Discuss the structure of the following molecules using VSEPR theory

- i) ClF_3 ii) XeF_6

12. Write a short note on *hydrometallurgy*.

13. Comment on the basicity order of hydrides of group 15 elements.

14. What are *pyrosilicates* ? Explain in brief.

Section: C

(Marks: $3Q \times 4 = 12$)

15. What are phosphazines ? Discuss the structures of two important chlorophosphazines ?

16. Discuss the structures of borazine ($\text{B}_3\text{N}_3\text{H}_6$) and diborane (B_2H_6).

17. Explain the following terms in brief: i) Clathrates ii) Inter pair effect iii) Catenation.