



XI-SCI : Chemistry
Elements of Group 13, 14 and 15,

DATE:

TIME: 1 hour 30
minutes

MARKS: 25

SEAT NO:

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Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

(4)

1. The type of hybridization of Boron in diborane is
A) sp B) sp^2
C) sp^3 D) dsp^2
2. Diamond and Graphite are
A) isomers B) isotopes
C) allotropes D) isomorphy
3. Carbon dioxide is gas but silica is solid because
A) Carbon dioxide is composed of discrete covalent CO_2 molecules whereas silica has continuous tetrahedral structure
B) CO_2 molecule is lighter than SiO_2 molecules
C) CO_2 is more acidic than SiO_2
D) Melting part of silica is very high
4. Graphite is
A) harder than diamond B) used as lubricant
C) an amorphous allotropic form of Carbon D) oil like substance

Q.2 Answer the following.

(3)

1. Why is CO used for extraction of metals from their oxides?
2. Write the equations only, when Group 15 elements are exposed to oxygen.
3. Write the equations only, when Reaction of Aluminium with water.

Section B

Attempt any Four

- Q.3 What are the different uses of borax? **(2)**
- Q.4 Explain the reaction of Elements of group 13, 14 and 15 with oxygen. **(2)**
- Q.5 What is common between diamond and graphite? **(2)**
- Q.6 Give the reactions supporting basic nature of ammonia. **(2)**
- Q.7 Explain the laboratory preparation of ammonia. **(2)**

- Q.8 Draw the structure of the following: (2)
(a) Orthophosphoric acid. (H_3PO_4)
(b) Resonance structure of nitric acid

Section C
Attempt any Two

- Q.9 Write an informative note on structure, properties and uses of diamond. (3)
Q.10 Explain the trend in oxidation state of elements from Nitrogen to Bismuth. (3)
Q.11 Draw and explain the structure of SiO_2 (3)

Section D
Attempt any One

- Q.12 Explain the trend in : (1) Ionisation enthalpy (2) Electronegativity in group 13 elements. (4)
Q.13 Find out the structural formulae of various oxyacids of Phosphorus. (4)