

AS/2051
INORGANIC CHEMISTRY
Paper – I

Time : Three Hours]

[Maximum Marks : 26

Note : Attempt *two* questions each from Section A and B.
Section C will be compulsory.

SECTION–A

- I. (a) Write a note on Polarization and Polarising power. 2
(b) Discuss Fajan Rules. 2
- II. (a) Differentiate between Schottky and Frenkel defects. 2
(b) Write functions of alkaline earth metals in biological systems. 2
- III. (a) What do you mean by diagonal relationship ? Mention its cause. 2
(b) Explain the following :
(i) Electron affinity of fluorine is lesser than that of chlorine.
(ii) Second ionisation energy of Na is higher than that of Mg. (1+1=2)

IV. Explain the following :

- (a) Lithium is the best reducing agent among alkali metals.
- (b) Alkali metals dissolve in ammonia and give blue coloured conducting solutions.
- (c) Anhydrous AlCl_3 is covalent while hydrated AlCl_3 is ionic.
- (d) Rule of alkali metals in biological systems. (1×4=4)

SECTION-B

V. (a) What are carbides ? Describe two types of carbides.
(b) What is borazine. Why is it called inorganic benzene and how is it prepared ? (2+2=4)

VI. Name *two* hydrides of phosphorous and discuss their preparation and properties. 4

VII. Explain the following :

- (a) NH_3 is Pyramidal in shape.
- (b) PbCl_2 is stabler than PbCl_4 .
- (c) H_2O is a liquid while H_2O is a gas.
- (d) CO_2 is a gas while SiO_2 is a solid. (1×4=4)

VIII. Write short note on :

- (a) Basic properties of halogens.
- (b) Polyhalides. (2+2=4)

SECTION-C

IX. Explain the following :

- (a) What is dry ice ? Why is it called so ? Mention its applications.
 - (b) Oxygen is a gas while phosphorous is a solid.
 - (c) Alkali metal impart characteristic colour to flame.
 - (d) Out of HClO_4 and HClO_3 which is stronger acid and why ?
 - (e) CCl_4 can be hydrolysed by water but SiCl_4 can not be. (2×5=10)
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