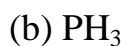


B.Sc. Part I
Inorganic Chemistry

Multiple Choice Questions

1. NaCl crystal is made up of:
(a) NaCl molecule (b) $\text{Na}^+ 2\text{Cl}^-$ ions
(c) Na and Cl atom (d) Dimers of NaCl
2. Which type of bond is present in diamond?
(a) Ionic (b) Covalent
(c) Metallic (d) None of these
3. Nucleon includes:
(a) Electron and proton (b) Proton and neutron
(c) Only neutron (d) Proton and meson
4. In the following which is paramagnetic?
(a) N_2 (b) NO and O_2
(c) N (d) O
5. Red Lead is-
(a) PbO_2 (b) Pb_3O_4
(c) Pb_2O_3 (d) PbO
6. In the following noble gases which noble gas is not found in atmosphere?
(a) Rn (b) Xe (c) Ne (d) Kr
7. The ratio of σ and π bond in benzene is
(a) 2 (b) 4 (c) 6 (d) 8
8. Carborandum is commercial name of –
(a) Al_2O_3 (b) $\text{Ca}(\text{H}_2\text{PO}_4)_2$ (c) H_3PO_4 (d) SiC
9. What is the unit of radioactivity?
(a) Curie (b) cm^{-1} (c) time^{-1} (d) None of these

10. The most unstable hydride is:



Short Answer Questions

1. Why hybrid orbitals form stronger bonds?
2. Shape of ClF_3 is T-shape. Why?
3. H_2 molecule is diamagnetic whereas H_2^+ ion is paramagnetic.
4. Write note on Schottky's defect.
5. AgCl is white while AgI is yellow is colour. How?
6. What do you mean by London force?
7. Why are alkali metals strong reducing agents?
8. Why Mg^{2+} ion is much more hydrated than Na^+ ion?
9. Electronegativity of fluorine is more than that of chlorine but the electron affinity of chlorine is more. Discuss.
10. Silicon carbide is as hard as diamond. Why?
11. How zeolites are used to convert hard water into soft water?
12. Boiling point of noble gases increases with their atomic number. How?
13. What is packing fraction? What is its relation with the stability of nuclei?
14. Write a note on artificial transmutation.
15. What do you mean by spallation reaction.

Long Answer Questions

1. Describe the electronic distribution in orbitals of XeF_6 , XeF_4 and XeF_2 . Also show the hybridization in these compounds.
2. Discuss the molecular orbital theory of CO molecule formation and also find bond order using molecular orbital diagram.
3. What is Radius Ratio? How it is related to coordination number of ions and geometry of molecules? Calculate the radius ratio for coordination number 6.
4. Explain the nature of weak intermolecular and intramolecular forces of attraction with suitable examples.
5. What do you know about the complexation tendency of s-block elements? What type of complexes are formed by these elements? Explain.
6. What do you mean by inert pair effect? Discuss their importance in the chemistry of p-block elements.
7. Discuss the methods of preparation, properties and structure of borazole. Why is it known as inorganic benzene?
8. "Chemistry of Xenon fluorides is mainly the chemistry of Xenon compounds". Justify the statement.
9. What are nucleons? What type of forces operate between them? Explain
10. What do you mean by nuclear fission and nuclear fusion reactions? Differentiate between these.