

Question

Classify the following solids in different categories based on the nature of intermolecular forces operating in them:

Potassium sulphate, tin, benzene, urea, ammonia, water, zinc sulphide, graphite, rubidium, argon, silicon carbide.

Answer:

Molecular Solids	Ionic solid	Metallic solids	Covalent solids
a) Non polar Benzene, Ar	K_2SO_4	Tin	Graphite SiC
b) polar urea	Zinc sulphide		
c) Hydrogen Bonded Ammonia water			

Question

Solid A is a very hard electrical insulator in solid as well as in molten state and melts at extremely high temperature. What type of solid is it?

Answer:

Given solid is a covalent or network solid.

Question

Ionic solids conduct electricity in molten state but not in solid state. Explain.

Answer:

In ionic compounds, electricity is conducted by ions. In solid state, ions are not free to move about, hence ionic solids do not conduct electricity. In the molten state or when dissolved

in water, the ions become free to move about and they conduct electricity.

Question

What type of solids are electrical conductors, malleable and ductile?

Answer:

Metallic solids are electrical conductors, malleable and ductile

Question:

Classify each of the following solids as ionic, metallic, molecular, network (covalent) or amorphous.

i) Tetraphosphorus decoxide (P_4O_{10})

ii) Ammonium phosphate $(NH_4)_3PO_4$

iii) SiC

iv) I_2

v) Plastic

vi) P_4

vii) Graphite

viii) Brass

ix) Rb

x) LiBr

xi) Si

Answer:

a) Ionic: Ammonium phosphate $(NH_4)_3PO_4$, LiBr

b) Metallic: Brass, Rb

c) Molecular: Tetraphosphorus decoxide (P_4O_{10}), I_2 , P_4

d) Covalent (Network): SiC, Graphite, Si

e) Amorphous: Plastic.