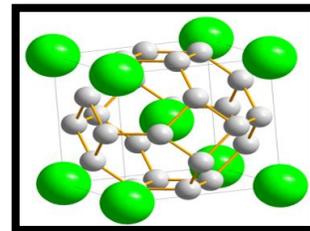
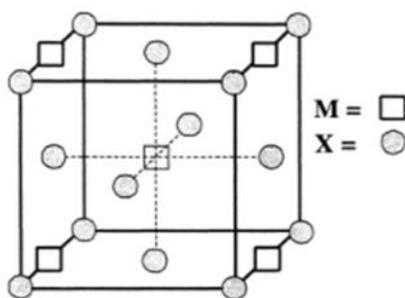


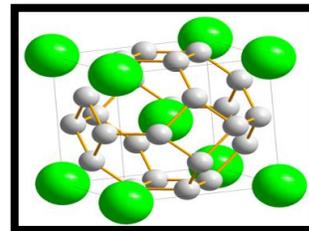
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1. Calculate the wavelength of X-rays which produces a diffraction angle 2θ to 16.80° for a crystal. Assume first order diffraction with inter pentacle diatomic in crystal of 0.2 mm.
2. If you know the mass density and the dimensions of unit cell of a crystal, than how you can determine the atomic mass of an unknown metal. Explain.
3. Liquids of gases are categories as fluids. Why?
4. Give reasons why solids are incompressible?
5. Write the situations under which amorphous substance charge to crystalline form?
6. A metallic element crystallizes into a lattice containing a sequence of layers of ABABB... Any parking of spheres leaves our voids in the lattice. What percentage by volume of this lattice is empty space?
7. Comment on the given sentence stability of a crystal is reflected in the magnitude of its melting point. Collect melting point of solid water, ethyl alcohol, diethyl ether and methane from a data book. What can you say about the intermolecular forces between these molecules.
8. A compound M_pX_q has cubic close parking (CCP) arrangement of X. It's unit cell structure is shown below:



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Determine the empirical formula of the compound.

9. AgCl is doped with 10^{-2} mol% of CdCl_2 find the concentration of cation vacancies.
10. Magnetic oxide of iron i.e., Magnetite used on recording tapes, Crystallizes with iron atoms occupying $1/8$ of the tetrahedral holes and $1/2$ of the octahedral holes in a closed packed array of oxide ions. What is the formula of magnetite?



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