Answer on Question #45374 – Chemistry – Inorganic Chemistry

Question:

The atomic number of an element X is 14, and its relative atomic mass is 28. How many neutrons does an atom of X contain? What is the electronic distribution in an atom of X? Will X react in an electrovalent or covalent manner? Give reasons for your answer.

Answer:

Silicon is a chemical element with the symbol Si, atomic number 14 and relative atomic mass 28. So, in our case X is the Silicon (Si).

Silicon-28 is a stable isotope of Silicon with $N = A - Z = 28 - 14 = 14$ neutrons in the nucleus. The electronic distribution of Silicon is $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^2$.

Silicon is a metalloid – value of his electronegativity is intermediate between metals and non-metals. Also on the outer energy level of Silicon atom there are four valent electrons, and it may react with both metals or non-metals to form four covalent bonds and stable electron octet configuration on the outer energy level.