

Answer on Question #83240 – Chemistry – General Chemistry

Task:

A monatomic ion with a 2^- charge has the electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6$.

- (a) What neutral noble-gas atom has the same electron configuration?
- (b) What is the monatomic ion with a 2^- charge that has this configuration?
- (c) Write the symbol of an ion with a 1^+ charge that is isoelectronic with the species in [a] and [b].

Solution:

$2 + 2 + 6 + 2 + 6 = 18$ electrons contain a monatomic ion with a 2^- charge.

- a) Let's find a noble-gas atom containing 18 electrons. -> It is **Argon (Ar)**.
- b) Let's find the monoatomic ion with a 2^- charge that has this configuration. -> It is **sulfide anion (S^{2-})**.
- c) Let's find symbols of ions with a 1^+ charge that are isoelectronic with the species in (a) and (b). -> This is **potassium cation, K^+** [for specie (a)] and **phosphorus anion, P^{3-}** [for specie (b)].

Answer provided by www.AssignmentExpert.com