Answer on Question #42543, Chemistry, Other

Question:

the total number of valence electron in 4.2g of N3 ion is?

Solution:

Electronic configuration N^{3-} ion = $1s^2\ 2s^2\ 2p^6$
Atomic mass of N = 14 g/mole
Therefore, number of moles of nitride ions in 4.2 g = 4.2/14 = 0.3 moles
Therefore, number of nitride ions in 0.3 moles = $0.3 \times 6.022 \times 10^{23}$
Number of valence electrons in one nitride ion = 8
So, number of valence electrons in $0.3 \times 6.022 \times 10^{23}$ nitride ions = $8 \times 0.3 \times 6.022 \times 10^{23}$
$= 14.45 \times 10^{23} = 1.445 \times 10^{24}$

Answer: 1.445×10^{24}.