

Problems of Average atomic mass and isotopic abundances

- 1) The element indium has two common isotopes: In-113 (112.90406 u) and In-115 (114.90388 u). If the average atomic mass of indium is 114.818 u, determine its percent isotopic abundances.

- 2) The element cerium has 4 naturally-occurring isotopes: 0.185 % Ce-136 (135.90714 u), 0.251 % Ce-138 (137.90599 u), 88.45 % Ce-140 (139.90543 u) and 11.114 % Ce-142 (141.90924 u). Determine the average atomic mass of cerium.

- 3) The element europium has two naturally-occurring isotopes: Eu-151 (150.91985 u) and Eu-153 (152.92123 u). If the average atomic mass of europium is 151.964 u, determine its percent isotopic abundances.

- 4) The element lutetium has two common isotopes: Lu-175 (174.94077 u) and Lu-176 (175.94268 u). If the average atomic mass of lutetium is 174.967 u, calculate its percent isotopic abundances.

- 5) The element lead has 4 common isotopes: 1.4 % Pb-204 (203.97303 u), 24.1 % Pb-206 (205.97445 u), 22.1 % Pb-207 (206.97588 u) and 52.4 % Pb-208 (207.97664 u). Find out the average atomic mass of lead.

- 6) The element lithium has two common isotopes: Li-6 (6.0151223 u) and Li-7 (7.016004 u). If the average atomic mass of lithium is 6.94004 u, determine its percent isotopic abundances.

Answers:

- 1) 4.29 % In-113 and 95.71 % In-115.
- 2) 140.116 u.
- 3) 47.81 % Eu-151 and 52.19 % Eu-153.
- 4) 97.41 % Lu-175 and 2.59 % Lu-176.
- 5) 207.217 u.
- 6) 7.59 % Li-6 and 92.41 % Li-7.