

**ASSIGNMENT- 1 (Deadline- 24/08/2015)**

Every group need to submit only one copy.

**Calculate relative intensity of isotopic peaks in mass spectra for the following molecular formula/ fragments.**

1.  $C_2H_4BrCl - [M], [M+1], \dots \text{until } [M+5]$ .
2.  $Br_2Cl_2 - [M], [M+2], [M+4], [M+6] \text{ and } [M+8]$ .
3.  $C_{60} - [M], [M+1], [M+3]$ .

**Isotope, Abundance and Mass of elements required for your exam:**

Element	Isotope 1, mass, abundance	Isotope 2, mass, abundance	Isotope 3, mass, abundance
Hydrogen	$^1H$ , 1.00783, 99.985%	$^2H$ or D, 2.0141, 0.015%	--
Carbon	$^{12}C$ , 12.00, 98.90%	$^{13}C$ , 13.00336, 1.1%	---
Nitrogen	$^{14}N$ , 14.0031, 99.62%	$^{15}N$ , 15.0001, 0.38%	--
Oxygen	$^{16}O$ , 15.9949, 99.76%	$^{17}O$ , 16.9991, 0.04%	$^{18}O$ , 17.9992, 0.20%
Fluorine	$^{19}F$ , 18.9984, 100%	--	--
Silicon	$^{28}Si$ , 27.9769, 92.22%	$^{29}Si$ , 28.9765, 4.69%	$^{30}Si$ , 29.9738, 3.09%
Phosphorous	$^{31}P$ , 30.9738, 100%	--	--
Sulfur	$^{32}S$ , 31.9721, 95.02%	$^{33}S$ , 32.9715, 0.75%	$^{34}S$ , 33.9679, 4.21%
Chlorine	$^{35}Cl$ , 34.9689, 75.77%	$^{37}Cl$ , 36.9659, 24.23%	--
Bromine	$^{79}Br$ , 78.9183, 50.69%	$^{81}Br$ , 80.9163, 49.31%	--
Iodine	$^{127}I$ , 126.9045, 100%	--	--
Ruthenium (total seven isotopes)	$^{96}Ru$ , 95.91, 5.54% $^{98}Ru$ , 97.91, 1.87% $^{99}Ru$ , 98.91, 12.76%	$^{100}Ru$ , 99.90, 12.60% $^{101}Ru$ , 100.91, 17.06%	$^{102}Ru$ , 101.90, 31.55% $^{104}Ru$ , 103.91, 18.62%