SAMPLE QUESTIONS

Question 1

A 10.0 g sample of bismuth tribromide, $BiBr_3$, contains:

a) 0.322 mol $BiBr_3$
b) 5.360×10^{22} total number of ions
c) 1.34×10^{22} bromide ions
d) 3.14×10^{22} formula units $BiBr_3$
e) 4.020×10^{22} total number of ions

Question 2

When the reaction, $Al_2(SO_4)_3(aq) + KOH(aq) \rightarrow Al(OH)_3(aq) + K_2SO_4(aq)$, is balanced with the smallest integer coefficients, the sum of the coefficients are:
a) 9
b) 24
c) 15
d) 12
e) 7

Question 3

Select the ion that has the following electronic configuration:
$[Ar]\ 4s^2\ 3d^{10}\ 4p^3$

a) S^+
b) Br^-
c) Ge^+
d) Sn^-
e) Se^+

Question 4

What is the concentration of $Br^-(aq)$ in a solution prepared by mixing 75.0 mL of 0.62 M iron(III) bromide with 75.0 mL of water? Assume volumes are additive.

a) 0.93 M
b) 0.31 M
c) 1.9 M
d) 0.62 M
e) 1.86 M

Question 5

Consider the thermite reaction:
$2Al(s) + Fe_2O_3(s) \rightarrow Al_2O_3(s) + 2Fe(l)$

2.5 g of Al is treated with 7.2 g of Fe_2O_3. What is the theoretical yield (in g) of liquid iron?

a) 5.17 g
b) 0.233 g
c) 5.03 g
d) 2.51 g
e) 0.873 g

ANSWERS

Question 1 b
Question 2 d
Question 3 e
Question 4 a
Question 5 c