(i) What mass of Ag_2S is produced from a mixture of 2.0g of Ag and 2.0g of S.

(ii) What mass of which reactant is left unreacted.

[Ag = 107.9 S = 32.06]

3. (a) Identify the following compounds:

(i) a silver salt that is white and moderately soluble, being precipitated only from concentrated sulphuric acid.

(ii) any soluble carbonate

(iii) any insoluble iodide

(iv) an insoluble barium salt which is also insoluble in dilute hydrochloric acid

(b) (i) Describe how the brown ring test may be [illegible] presence of the nitrate ion.

(ii) List any ions that do interfere with this test.

(iii) Write all chemical equations involved in the test.

(c) Which of the following anions would not react with $KMnO_4$? Phosphate, sulphite, chromate, bromide.

4. (a) Describe how you would prepare 500 ml of 0.02 M Na_2SO_4 solution. A 25 ml aliquot of this solution is transferred to another 500 ml volumetric flask and diluted to the mark. Calculate the molarity of this new solution. How many fold dilution has this solution undergone.

(b) The ratio of the number of atoms of the isotopes of ^{69}Ga and ^{71}Ga in samples from different sources was measured in an effort to understand differences in reported values of the atomic weight of gallium. Results for 8 samples were as follows.

Sample	1	2	3	4	5	6	7	8
$^{69}Ga/^{71}Ga$	1.52660	1.52974	1.52592	1.52731	1.52804	1.52685	1.52793	1.52794

(a) Find the mean value of $^{69}Ga/^{71}Ga$.
(b) Find the standard deviation
(c) Find the variance
(d) Find the median value.

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