1. How many grams of potassium permanganate you need, if you want to prepare 2,5 litre of the solution with the concentration 0.02 mol/l? Mr = 158 g/mol.

2. Specific optical rotation (2.2.7): Dissolve 10.0 g in 80 mL of water R, add 0.2 mL of dilute ammonia R1, allow to stand for 30 min and dilute to 100.0 mL with water R.
   Calculate specific optical rotation of glucose, if you know that the length of polarimeter tube is 1 dm, weight of drug is 10,4 g and the angle of rotation is 5.5°.

3. Ultraviolet and visible absorption spectrophotometry (2.2.25): Test solution. Dissolve 10 mg in dilute hydrochloric acid R and dilute to 100 mL with the same acid. Dilute 5 mL of the solution to 100 mL with dilute hydrochloric acid R.
   Spectral range: 240-800 nm. Absorption maxima: at 255-260 nm, 285-290 nm, 675-685 nm and 740-750 nm.
   Calculate specific absorbance at 740 nm of methylthioninium chloride, if you know that weight of drug is 10.5 mg and the measured absorbance is 0.356.

4. 1 M Hydrochloric acid: Standardisation. Dissolve 1.000 g of sodium carbonate RV in 50 mL of water R, add 0.1 mL of methyl orange solution R and titrate with the hydrochloric acid until the solution just becomes yellowish-red. Boil for 2 min. The solution reverts to yellow. Cool and continue the titration until a yellowish-red colour is obtained.
   1 mL of 1 M hydrochloric acid is equivalent to 53.00 mg of Na_2CO_3.
   Calculate the titre of volumetric solution (with four decimal places), if you know that weight is 1,0260 g and consumption of volumetric solution is 19,5 ml.

5. Assay: Dissolve 1.000 g in 20 mL of water R and add a mixture of 5 mL of formaldehyde solution R, previously neutralised to phenolphthalein solution R, and 20 mL of water R. After 1-2 min, titrate slowly with 1 M sodium hydroxide, using a further 0.2 mL of the same indicator.
   1 mL of 1 M sodium hydroxide is equivalent to 53.49 mg of NH_4Cl.
   Calculate the content of ammonium chloride in per cents (with two decimal places), if you know: weight of drug = 1.0176 g; f = 1.0232; consumption of volumetric solution = 18.5 mL

6. Assay: Dissolve 1.300 g in water R and dilute to 100.0 mL with the same solvent. To 10.0 mL of the solution add 50 mL of water R, 5 mL of dilute nitric acid R, 25.0 mL of 0.1 M silver nitrate and 2 mL of dibutyl phthalate R. Shake. Titrate with 0.1 M ammonium thiocyanate, using 2 mL of ferric ammonium sulfate solution R2 as indicator and shaking vigorously towards the end-point.
   1 mL of 0.1 M silver nitrate is equivalent to 7.46 mg of KCl.
   Calculate the content of potassium chloride in per cents (with two decimal places), if you know: f(NH_4SCN) = 1.0236; f($AgNO_3$) = 0.9895; weight of drug = 1.2830 g; consumption of volumetric solution = 7.5 mL.