

## Seminar work – 2021/2022

*Write if yourself (handwritten – do not printed version!)*

*Type the name of the element, show calculation method.*

### Write the name of chemical element:

- 1) Cr, Ti, S
- 2) Pb, K, Cu
- 3) Ag, Na, H
- 4) Ca, Mg, Hg
- 5) Cd, O, Ba
- 6) U, Au, Li
- 7) Br, Al, Cl
- 8) N, F, Xe
- 9) I, Ne, P
- 10) Ar, Mn, At
- 11) Fe, C, He

### Calculate:

- 12) Calculate the percentage change in fabric size if the original length was 10 cm and the new length is 120 mm.
- 13) Calculate the percentage change in fabric size if the original length was 10 cm and the new length is 9 cm.
- 14) What volume in milliliters will the dye bath have if the weight of the fabric sample is 2 g and the bath ratio is 1:50?
- 15) What volume in milliliters will the dye bath have if the weight of the fabric sample is 3 g and the bath ratio is 1:20?
- 16) What volume in milliliters will the dye bath have if the weight of the fabric sample weight is 2 kg and the bath ratio is 1:30?
- 17) What volume in liters will the dye bath have if the weight of the fabric sample is 1 kg and the bath ratio is 1:20?
- 18) If the bath volume is 100 ml, the bath ratio is 1: 100. How many grams does the fabric sample weigh?
- 19) If the bath volume is 20 ml, the bath ratio is 1:40. How many grams does the fabric sample weigh?
- 20) If the bath volume is 2000 ml, the bath ratio is 1:20. How many grams does the fabric sample weigh?
- 21) If the bath volume is 2000 ml, the weight of the sample is 20 g. What is the bath ratio?
- 22) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 2 g and the dye loading percentage is 2 %?
- 23) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 1 %?

- 24) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 5 g and the dye loading percentage is 10 %?
- 25) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 2 %?
- 26) How many milliliters of  $100 \text{ g.l}^{-1}$  NaCl solution will you use if you dose 0.1 g of NaCl?
- 27) How much dye is in the dyeing bath before dyeing if the fabric sample weight is 2 g and the dye loading percentage is 2 %?
- 28) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 1 %?
- 29) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 5 g and the dye loading percentage is 10 %?
- 30) How much dye is in the dyeing bath before dyeing if the weight of the fabric sample is 10 g and the dye loading percentage is 2%?

**Write the formula of anorganic compound:**

- 31) Sodium carbonate
- 32) Sodium hydrogen carbonate
- 33) Calcium sulfate
- 34) Copper hydroxide
- 35) Cupper(I) oxide
- 36) Calcium chloride
- 37) Potassium permanganate
- 38) Glauber's salt (Sodium sulfate decahydrate)
- 39) Sodium sulfate
- 40) Copper(II) sulfate pentahydrate
- 41) Sulphuric acid
- 42) Sodium dithionite
- 43) Sodium thiosulfate
- 44) Ammonia
- 45) Ozone
- 46) Hydrochloric acid
- 47) Phosphoric trihydrogenic acid
- 48) Sodium sulfide
- 49) Sodium chloride
- 50) Aluminum sulphate
- 51) Titanium dioxide
- 52) Nitric acid
- 53) Sodium hydroxide
- 54) Potassium hydroxide
- 55) Hydrogen peroxide
- 56) water
- 57) Sodium hypochlorite
- 58) Sodium chlorite

- 59) Potassium dichromate
- 60) What chemicals does Fehling I contain?
- 61) What chemicals does Fehling II contain?

**Write structural (constitutional) formula following organic compounds:**

- 62) Acetic acid
- 63) Formic acid
- 64) Terephthalic acid
- 65) Methanol
- 66) Ethylene glycol
- 67) Glycerol
- 68) Ethanol
- 69) Urea
- 70) Sodium acetate
- 71) Formaldehyde
- 72) Naphthalene
- 73) Anthraquinone
- 74) Phenol
- 75) Carbon tetrachloride
- 76) Chloroform
- 77) Benzene
- 78) Methane
- 79) Ethane
- 80) Propane
- 81) Acetone
- 82) Polyethylene terephthalate
- 83) Polypropylene
- 84) Polyethylene
- 85) Polyamide 6
- 86) Polyamide 6.6
- 87) Polyamide 11
- 88) Polyacrylonitrile

**Calculate:**

- 89) How much g of NaCl contains 100 g of 10 % solution?
- 90) How many g of KBr contains 10 kg of 10 % solution?
- 91) How much g of NaCl contains 100 ml of 10 g.l<sup>-1</sup> solution?
- 92) How much g of HCl contains 10 ml of 100 g.l<sup>-1</sup> solution?
- 93) How much kg of KCl contains 100 l of 100 g.l<sup>-1</sup> solution?
- 94) How much g of NaCl contains 100 g of a 5 g.l<sup>-1</sup> solution (think about 1 g.cm<sup>-3</sup>)?
- 95) How much g NaCl contains 1 kg of 5 g.l<sup>-1</sup> solution (think about 1 g.cm<sup>-3</sup>)?

- 96) How much g of NaCl do you need to prepare 200 g of 5 % solution?
- 97) How much g of NaCl do you need to prepare 100 g of 5 % solution?
- 98) How much g of NaCl do you need to prepare 100 g of a 10 % solution?
- 99) How much g NaCl contains 1000 g of a 10 g.l<sup>-1</sup> solution with a density of 1 g.cm<sup>-3</sup>?
- 100) How much g of NaOH do you need to prepare 100 g of a 35 % solution?