**Admission test model I (total 100 points)**

**1 inorganic compounds formula question (6 points)**

Choose the correct formulas for the following compounds: nitrous oxide, nitrogen dioxide, nitric oxide
A. N2O, NO2, N2O5

B. NO, N2O3, NO3

C. N2O, N2O3, N2O5

D. N2O3, NO2, NO3

**ANSWER: A**

**1 organic compounds formula question (6 points)**

Choose the correct variant of the formulas of the following compounds

Ethandioic acid; β-D-ribofuranose; α-Alanine

A)  

B)   

C)   

D)   

A. correct variant A)

B. correct variant B)
C. correct variant C)
D. correct variant D)
**ANSWER: D**

**1 question on the names of inorganic compounds (6 points)**

Name the following compounds: BaH2, PH3, H2Se
A. barium hydride, phosphorous hydride, selenide
B. barium hydride, phosphane, selane
C. barnanane, phosphide, selenium hydride
D. barium hydride, phosphide, selenic acid
**ANSWER: B**

**1 organic compound name question (6 points)** Choose the correct variant of the names of the following compounds.


A. pyridine; 2-methylbuta-1,3-diene; 2-phenylethanal
B. pyridine; 2-methylbuta-1,3-diene; 2-phenylethanoic acid
C. pyrimidine; 2-methylbuta-1,3-diene; 2-benzenethanal
D. pyrimidine; 2-methylbuta-1,3-diene; 2-benzene ethanaldehyde
**ANSWER: A**

**1 inorganic equation question entered on the left side in formulas (6 points)**

Choose the correct completed and calculated right side of the following equation: NaCl + F2 =

A. 2NaF + Cl2

B. there is no reaction between the two substances

C. 2NaF2 + Cl2

D. NaF + ClF

**ANSWER: A**

**1 inorganic equation question entered on the left side verbally (6 points)**

The reaction of calcium oxide with water produces:

A. calcium hydroxide and hydrogen

B. calcium acid

C. calcium hydroxide

D. calcium hydride and oxygen

**ANSWER: C**

**1 organic equation question entered on the left side in formulas (6 points)** Choose the correct right side of the equation  A) 

 B) 

 C) 

 D) 

A. correct variant A)

B. correct variant B)
C. correct variant C)
D. correct variant D)
**ANSWER: B**

**1 organic equation question entered on the left side in the words (6 points)**

Choose the correct answer option.

Reduction (reaction with hydrogen) of nitrobenzene produces:

A. phenol and ammonia
B. aniline and water

C. benzaldehyde and nitrous oxide

D. benzene and nitrogen dioxide
**ANSWER: B**

**1 stoichiometric calculation from the formula (6 points)**

150 kg of pure nitrogen must be added to the soil of 1 ha. Calculate how many kg of 80% ammonium salt (ammonium nitrate) is needed for this purpose. (K = 39 g/mol, N = 14 g/mol, O = 16 g/mol)

A. 387

B. 316

C. 536

D. 455

**ANSWER: C**

**1 stoichiometric calculation from the equation (6 points)**

Calculate how many grams of nitric acid are needed to neutralize 250 g of calcium hydroxide. (O = 16 g/mol, H = 1 g/mol, N = 14 g/mol, Ca = 40 g/mol)

A. 213

B. 638

C. 851

D. 426 g

**ANSWER: D**

**20 quiz questions (2 points - total 40 points)**

In oxidation-reduction reactions, the oxidizing agent itself:

a) is reduced

b) is oxidized

c) is deduced and oxidized

d) does not change its oxidation state

**ANSWER: A**

What is the concentration of [H3O+] ions in an aqueous solution of NaOH with a volume of 1 dm3, which contains NaOH in a substance amount of 0.001 mol:

a) 10-12 mol dm-3

b) 10-3 mol dm-3

c) 10 -11 mol dm-3

d) 10-14 mol dm-3

**ANSWER: C**

Superphosphate is an industrial fertilizer whose active ingredient is:

a) CaHPO4

b) Ca3(PO4)2

c) Ca (H2PO4)2

d) CaHPO3

**ANSWER: A**

Water hardness is caused by dissolved salts:

a) nitrates

b) sodium and potassium salts

c) calcium and magnesium salts

d) nitrates, nitrites and ammonium salts

**ANSWER: C**

Phosphorus is a biogenic element. Plants take it up most easily in the form of these ions:

a) PO43-

b) H2PO4-

c) HPO42-

d) PO33-

**ANSWER: B**

The action of rainwater gradually dissolves the limestone. This is because rainwater contains:

a) dissolved nitrogen

b) dissolved oxygen

c) dissolved carbon dioxide

d) dissolved salts of nitrogen (NH4+, NO2-, NO3- etc.)

**ANSWER: C**

Ammonium salt, which is used as a fertilizer, has the following composition:

a) NH2NO3

b) NH4NO3

c) NH4CN

d) NH4Cl

**ANSWER: B**

Ammonia with acids provides:

a) nitrates

b) amides

c) ammonium salts

d) amine salts

**ANSWER: C**

Tetraoxophosphoric acid is:

a) HPO4

b) H2PO4

c) H3PO4

d) H4PO4

**ANSWER: C**

Which of the following compounds reacts alkaline:

a) Na2CO3

b) Na2SO4

c) NaCl

d) NH4Cl

**ANSWER: A**

Polyethylene is created by:

a) cyclization

b) polycondensation

c) polyaddition

d) polymerization

**ANSWER: D**

This compound is:



a) buta-1,3-diene

b) isopentane

c) isoprene

d) isopentene

**ANSWER: C**

The acid which has the largest number of carboxyl groups is:

a) gallic

b) tartaric

c) citric

d) glutaric

**ANSWER: C**

Pyrimidine is:

a) amino acid

b) nitrogen heterocycle

c) protein enzyme

d) peptide

**ANSWER: B**

Natural amino acids in proteins have:

a) D-configuration

b) L-configuration

c) D, L-configuration

d) they form racemates

**ANSWER: B**

The basic type of bond in fats is the bond:

a) etheric

b) esteric

c) glycosidic

d) amidic

**ANSWER: B**

Soaps are created by:

a) acidic hydrolysis of acylglycerols

b) hydrogenation of acylglycerols

c) hydration of acylglycerols

d) alkaline hydrolysis of acylglycerols

**ANSWER: D**

Fructose is:

a) aldopentose

b) aldohexose

c) ketopentose

d) ketohexose

**ANSWER: D**

Saccharose (sucrose) consists of:

a) two molecules of glucose

b) molecule of glucose and galactose

c) molecule of glucose and fructose

d) two molecules of fructose

**ANSWER: C**

RNA (ribonucleic acids) consist of:

a) interconnected molecules of amino acids and nitrogenous bases

b) interconnected molecules of D-ribose and trihydrogenphosphoric acid

c)) interconnected molecules of D-ribose, trihydrogenphosphoric acid and nitrogenous bases

d) interconnected nucleosides

**ANSWER: C**