

MINISTRY OF PUBLIC HEALTH OF UKRAINE
NATIONAL UNIVERSITY OF PHARMACY

Analytical Chemistry Department
(title of department)



QUESTION CARDS SET
TO THEMATIC CONTROL №1

ANALYTICAL CHEMISTRY
(title of academic subject)

Educational degree master
(level of educational degree)

Training area 22 – PUBLIC HEALTH
(code number and title of training area)

Speciality 226 – PHARMACY, INDUSTRIAL PHARMACY
(code number and title of speciality)

Educational program PHARMACY (ФМ(5,0)англ)
(title of educational program)

Kharkiv 2019
(development year)

**MINISTRY OF PUBLIC HEALTH OF UKRAINE
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Educational degree master Training area 22 – PUBLIC HEALTH
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 Speciality 226 – PHARMACY, INDUSTRIAL PHARMACY Educational program PHARMACY (ФМ(5,0)англ)
(code number and title of speciality) (title of educational program)
 Semester autumn semester, 2019/2020 academic year Subject ANALYTICAL CHEMISTRY
(title of academic subject)

THEMATIC CONTROL №1

QUESTION CARD (EXAMPLE)

- Classify the certain cations according to the groups (the acid-base classification).
- Write the equations of reactions for the certain cation with the group reagent.
- Write the equations of reactions and specify the conditions for the certain cation detection.
- Solve the task: the solution contains SO_4^{2-} , SO_3^{2-} , S^{2-} and $\text{S}_2\text{O}_3^{2-}$ -ions. Specify the sequence of precipitation for these ions after adding AgNO_3 solution. Base your answer using the values of K_s . Write the equations of reactions.
- Answer the tests.

POINTS DISTRIBUTION

question 1	1 point
question 2	3 points
question 3	3 points
question 4	3 points
question 5	5 points
in all	15 points

Estimation scale: national and ECTS

Points in all	ECTS mark	Mark by national scale
13.5 – 15.0	A	5
12.3 – 13.4	B	4
11.1 – 12.2	C	
9.5 – 11.0	D	3
9.0 – 9.4	E	
0 – 9.0	F	2

It has been approved at the meeting of the Analytical Chemistry Department.
The minutes №3 from 18. 10. 2018 year.

Head of the Analytical Chemistry Department, prof.

(sign)

I. S. Gricenko

Examiner, as. prof.

(sign)

O. Ye. Mykytenko

performed by as. prof. Klimenko L. Yu., as. prof. Mykytenko O. Ye., as. prof. Kostina T. A.

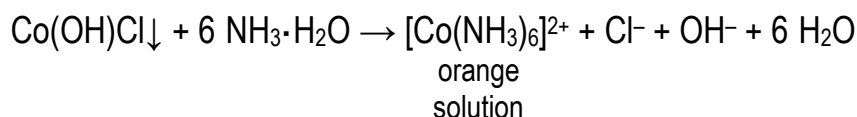
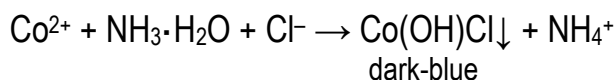
THEMATIC CONTROL №1

1. Classify the certain cations according to the groups (the acid-base classification).

NH_4^+ – Ist group
 Cu^{2+} – VIth group
 Sn(IV) – IVth group
 Sb(V) – Vth group
 Mn^{2+} – Vth group
 Zn^{2+} – IVth group
 Sr^{2+} – III^d group

2. Write the equations of reactions for the certain cation with the group reagent.

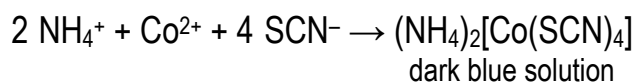
Action of the group reagent for Co^{2+} -cations – ammonia solution:



3. Write the equations of reactions and specify the conditions for the certain cation detection.

Identification of Co^{2+} -cations:

Action of ammonium thiocyanate solution in the presence of isoamyl alcohol:



4. Solve the task: the solution contains SO_4^{2-} , SO_3^{2-} , S^{2-} and $\text{S}_2\text{O}_3^{2-}$ -ions. Specify the sequence of precipitation for these ions after adding AgNO_3 solution. Base your answer using the values of K_s . Write the equations of reactions.

