Name of the Discipline	Final State Certification
Semester(s)	8
Responsible teacher	Sultanov Marat Mirzayevich, Doctor of Chemical Sciences (DSc), Professor Rashidova Komila Khamidovna, Doctor of Philosophy (PhD) in Chemical Sciences, Associate Professor Inatova Maqsuda Sadullayevna, Doctor of Philosophy (PhD) in Chemical Sciences, Associate Professor Eamberdiyev Ikrom Botirovich, Senior Lecturer, Department of Chemistry and Teaching Methods
Language of teaching/learning	Uzbek/Russian
Connection to the curriculum	Compulsory
Forms of teaching/learning	Final state certification
Academic workload (including contact hours and self-study)	Total work load: 120 hours
ECTS	4
Prerequisites	Inorganic chemistry, organic chemistry, chemistry teaching methodology at school, analytical chemistry, solving chemistry problems.
Discipline objectives / Learning Outcomes	The purpose of the final state certification (FSC) of graduates of higher educational institutions is to assess the theoretical knowledge and practical skills acquired by students during the educational process and to determine their readiness to work independently as specialists. The main tasks of FSC are: Assessment of the student's level of knowledge - to determine whether he has sufficient knowledge and skills in the subjects provided for in the educational program. Checking the level of preparation for a specialty - to assess the ability to solve professional problems, critical and analytical skills. Checking readiness for scientific and practical activities - to demonstrate the student's ability to conduct independent research through a graduation qualification work or diploma thesis. Assessment of readiness for future work - to determine the graduate's ability to be competitive in the labor market in his specialty.
Lessons' contents	1. Structure, physical and chemical properties of alkali metals. 2. Oxides of nitrogen. Methods of obtaining and areas of application. 3. When 27 g of copper salt was dissolved in 173 g of water, the mass fraction of copper in the resulting solution was 6.4%. Determine which copper salt was dissolved? 4. The salt contains 28% metal, 24% sulfur, and 48% oxygen. Determine the metal? 5. Write the physical and chemical properties of alkaline earth metals. 6. A piece of 23 g of sodium was completely dissolved in 218 ml of water. Determine the molar (mol/kg) concentration of the resulting solution. 7. Chlorine, its occurrence in nature, production, properties. Hydrochloric acid. Write the oxygen compounds of chlorine. 8. The elements of the nitrogen group, their physical and chemical

	properties. 9. Basic characteristics of chemical bonds: bond length, energy. Valence angle. Write the main types of chemical bonds. 10. A 23 g piece of sodium was completely dissolved in 218 ml of water. Determine the molar concentration (mol/kg) of the resulting solution. 11. Write the preparation and chemical properties of nitric acid. 12. As a result of the burning of dolomite mineral containing 0.5 percent impurities, 5 liters of gas were obtained. Calculate the mass of dolomite obtained for the reaction. 13. Find the mass (kg) of coal containing 0.95 mass fraction of carbon to obtain 1000 m3 of water gas. 14. Ammonia. Chemical properties of ammonia. The reaction of ammonia with oxygen. a) in the presence of a catalyst b) without a catalyst, write and explain the cases? 15. Explain the physical properties of carbon and its allotropic forms and their production 16. When 15.8 g of potassium permanganate was heated, 0.896 1 liter (l) of oxygen was produced. Calculate the yield of oxygen (%). 17. Find the volume (l) of gas produced in the reaction of 72 g of graphite and calcium oxide with water at high temperature under conditions where the yield at each stage of the reaction was 80%. 18. Write the physical and chemical properties of aluminum and the reaction equations. 19. Describe the production and chemical properties of sulfuric acid. 20. If the reaction yield is 50%, how much volume (l.l.) of gas is released as a result of the decomposition of 2 mol of copper (II) nitrate? 21. When 10.8 g of calcined soda was treated with a molar amount of hydrochloric acid, 2.24 liters of gas were evolved in the reaction. Determine the mass fraction (%) of the additive in the soda. 22. If the mass fraction of phosphorus in the oxide is 56.4% and that of oxygen is 43.6%, find the simplest formula of the oxide. 23. Write about the oxygen compounds of sulfur. 24. Phosphorus and its compounds and properties. 25. Calculate the volume (in the reaction) of the gas formed as a result of the reaction of 5.6 g of CO with a sufficient amount of FeO. 26. How many (g) of copper (II) sulfate and iron must be reacted to separate 8 g of copper? 27. Give an idea about chlorine and chlorine compounds and write the methods of their preparation. 28. Explain the oxygen compounds of sulfur and write their chemical properties. 29. How much (kg) of carbon dioxide can be obtained from burning 10 kg of magnesite containing 94% pure MgCO3? 30. Hydrogen peroxide. Write the preparation, physical and chemical properties of hydrogen peroxide. 31. Oxygen and its allotropic form changes, methods of

	preparation and properties. 32. Hydrolysis of salts and its mechanism. Types of hydrolysis of salts. 33. How much (g) of magnesium oxide is formed from the complete combustion of 12 g of magnesium? 34. How much (g) of phosphorus is needed to obtain 20 g of metaphosphoric acid (HPO3)? 35. The reaction of chlorine with an alkali solution. a) hot alkali solution b) cold alkali solution Write and explain the conditions? 36. Define isotope and give examples of substances that are isotopes of each other. 37. Find the formula of the oxide for which 2.24 l of hydrogen was consumed to reduce 8 g of metal oxide. 38. How many (g) NaH should be added to 200 g of water to prepare a 2% NaOH solution? 39. Physical and chemical properties of alkali elements and compounds of non-metals. 40. Physical and chemical properties of nitrogen. 41. When 0.3 mol of a mixture of Na and Ca reacts with water, 4.48 l (n.sh) of gas is released. Find the mass (g) of Ca in the initial mixture. 42. How many (g) of hydrogen can be obtained from the interaction of 49 kg of sulfuric acid with a sufficient amount of zinc under conditions where the reaction yield is 90%? 43. Give examples of the main rules of the theory of electrolytic dissociation? 44. How many (g) magnesium oxide are formed from the complete combustion of 123 g of magnesium? 45. Write about the chemical and physical properties of the element cobalt. 46. What are the laws of periodic recurrence in the periodic table? Explain using the example of group C 47. Ionization potential and. physicochemical properties of the elements of the first group. 48. How many (t) sulfuric acid can be obtained from 400 t of pyrite containing 48% sulfur? 49. Occurrence, extraction, physical and chemical properties of zinc, cadmium, mercury in nature. Their compounds, extraction and properties. 50. Extraction, chemical properties of phosphorus and its compounds. 51. What are the properties of the extraction of oxides and the importance of the element oxygen? 52. If 4.44 g of malachite decomposes to form 3.2 g of copper (II) oxide and 0.36 g of water, how many grams of gas are released? 53. In what forms does hydrogen occur in nature and methods of extraction? 54. Give an idea of the distribution and extraction of silver in nature? 55. Write about the importance and areas of use of the element silicon. 56. When potassium permanganate weighing 38.6 g is heated,

	0.656 l (equivalent) of oxygen is obtained. Calculate the oxygen yield (%). 57. How much sulfur (VI) oxide does 179 g of sulfuric acid correspond to? 58. Write the importance and use of the most important compounds of the element sulfur. 59. Fluorine, natural compounds. Preparation, properties of fluorine. Preparation, properties of hydrogen fluoride. Write about fluorine oxides. 60. Write the allotropic forms of phosphorus and methods of preparation. 61. How many grams of calcium hydroxide with a 15% addition are needed to obtain 26.88 1 (e.g.) of ammonia in the laboratory? 62. How many liters of hydrogen sulfide measured under standard conditions can be obtained from 0.1 kg of iron sulfide with a mass fraction of 88% 63. Give the methods for obtaining an element with the electronic formula 1s2, 2s2, 2p6, 3s2, 3p6, 4s2, 3d10, 4p6, 5s1 with their properties. 64. What is the phenomenon of allotropy? Explain with examples. 65. How can sulfuric acid be obtained from pyrite? Write the reaction equations 66. How many grams of potassium should be added to 500 grams of water to prepare a 4 molar (g=1.12) potassium hydroxide solution? 67. Calculate the volume (l) of ammonia required to neutralize 225 ml of 35% (g=1.2g/ml) nitric acid solution. 68. Define the elements of the carbon group and write their chemical properties? 69. How does the radius of the atom of the elements change: Li, Na, K, I, Br, Cl, F, give an explanation? 70. Methods of obtaining oxygen, physical and chemical properties. 71. What salts undergo hydrolysis only by cation? Give examples. 72. How many grams of a sample of calcium hydroxide with a 15% additive are needed to obtain 67.2 l (h.sh) of ammonia in the laboratory? 73. In which oxide does nitrogen exhibit high valence and which metal reacts with nitrogen under normal conditions? 74. Preparation of hydrogen, physical and chemical properties. 75. How many grams of precipitate will form when a large amount of silver is treated with 200 ml of 27% nitric acid (p = 1.24 g/ml)? 76. How is oxygen obtained in the laboratory and write its chemical properties? 77. What is the electronic formula of the outer energy shell of a silicon atom and write the chemical properties of silicon (IV) oxide. 78. How many moles of hydrogen are released when 32.5 g of zinc is treated with hydrochloric acid? 79. What is the mass of the salt formed when 20 g of copper (II) oxide is heated with 21 g of sulfuric acid? 80. List the amphoteric hydroxides and define the word

	amphoteric? 81. Preparation of aluminum, physical and chemical properties. 82. When 160 g of solution was calcined, 40 g of salt remained. Find the mass fraction of dissolved salt in the solution 83. Find the volume of sulfur (IV) oxide obtained with a yield of 95% when 3 t of FeS2 (Mr=120) was calcined? 84. How is nitric acid produced in industry? 85. How many (g) of copper (II) sulfate and iron must be reacted to separate 8 g of copper? 86. When calcining 2.0 g of limestone, 336 ml (n.sh) of carbon dioxide were formed. What is the mass fraction of impurities in limestone? 87. How many of its 5% and 30% solutions must be taken to prepare 800 g of a 20% solution of table salt. 88. Which element has the smallest atomic radius? Define it. Describe its properties. 89. What oxidation states and valencies do nitrogen compounds exhibit? Give the formation of compounds. 90. Write the reaction of ozone formation and the chemical properties of ozone. 91. Determine the mass of sulfur required to produce 140 tons of sulfuric acid with a yield of 92.5%? 92. How much 60% sulfuric acid solution should be taken to obtain ammonium sulfate from 6.8 g of ammonia? 93. What is the environment of the table salt solution and what are the physical and chemical properties of table salt? 94. 50 ml of the solution contains 6.85 g of aluminum sulfate. What is the molar concentration of the salt? 95. 8.96 l (equivalent) of ammonia was oxidized in oxygen in the presence of a catalyst. Oxygen source - Bertolle salt. Determine what mass (g) of this salt should be taken for the reaction 96. Give the types of oxidation-reduction reactions. 97. Describe the physical and chemical properties of the potassium element? 98. How many grams of potassium chloride are in 300 ml of 0.2 M solution? 99. How many grams of Glauber's salt are added to 200 g of 10% sodium sulfate solution to form a 20% solution? 100. Write down the aluminum compounds and their properties. 101. Iron. Iron compounds. Applications of iron compounds. 102. Write down the physical and chemical properties of hydrogen chloride. 103. Ammonia, which is in a volume of 20 l, was dissolved in water, which has a mass of 400 g. Determine the mass fraction of ammonia in the solution. 104. Determine the mass of ammonia consumed to obtain nitric acid, which has a mass of 12.6 t, taking into account the fact that the waste in industry is 5%. 105. What chemical reactions does the lithium element enter into? 106. What are the allotropic forms of carbon? Describe them. 107. Write the general properties of metals? 108. Ammonia, which is in a volume of 20 l, was dissolved in

	water weighing 400 g. Determine the mass fraction of ammonia in the solution. 109. The mass fraction of carbon in iron carbide is 6.57%. Determine the formula of iron carbide. 110. Which element is the second most abundant in the earth's crust after O2? Describe it. 111. Which substance is the second most abundant in hardness after carborundum? 112. What compounds of phosphorus are widely used in agriculture? Give examples of phosphorus fertilizers. 113. Determine the density of a gas mixture consisting of equal volumes of hydrogen and helium relative to hydrogen. 114. A 1.5-ton mass of limestone with a mass fraction of calcium carbonate of 90% was burned in a furnace. A molar amount of water was added to the solid residue. Determine the calcium hydroxide obtained? 115. How many different oxides of nitrogen are there? Define them. Describe their chemical properties. 116. Write the chemical properties of calcium metal. 117. Which sulfur compounds are harmful to agricultural crops, and in what forms do they occur? 118. A molar amount of acid was dissolved from 1 gram of an alloy consisting of magnesium and aluminum. 1.15 liters of hydrogen were released. Determine the percentage of magnesium in the alloy. 119. It was found that when 8.5 g of an alloy consisting of Na and K were immersed in water, 3.36 l of hydrogen was released. Find the mass of sodium in the alloy. 120. Where is ozone found and give full information about its importance? 121. What compounds does sulfur form? Which are the most important among them? 122. A mixture of carbon and sulfur was burned to produce 30 g of carbonate and sulfite anhydride. Determine the percentage of carbon in the mixture. 123. When 11.4 g of an alloy of Mg and Li reacted with N2 under sufficient conditions, 12.9 g of product was obtained. What was the mass fraction of Mg in the initial mixture? The yields of Mg3N2 and Li3N are 70% and 80%, respectively. 124. Which elements are included in halogens, define each of them and write their physical and chemical properties? 125. Write the reaction equations for how to remove water hardness? 126. The mass of calcium in 100 g of CaX 2 is 20 g. What element is X? 127. What acids does zinc metal react with? 128. By what methods is nitrogen produced in industry and where are there enterprises producing nitrogen? 129. Write the chemical and physical properties of one of the alkali metals. 130. For what purposes (in what production) is water used in industry?

	131. Write and explain the reaction of chlorine with an alkali solution a) hot alkali solution b) cold alkali solution? 132. In what forms does the element Si occur in nature? 133. 50g of a mixture of NaCl and CaCO3 was dissolved in 270g of water and a 10% solution was obtained. Find the composition of the mixture. 134. What are the allotropic forms of phosphorus? Describe them? 135. What is formed when aluminum reacts with dilute and concentrated nitric acid? 136. How many grams of Bertole salt with 10% additives are needed to produce 33.6 l (e.g.) of oxygen? 137. What volume (e.g., what gas is formed when 16 g of sulfur is exposed to 200 g of 98% sulfuric acid? 138. Write the differences and similarities between oxygen and ozone? 139. What volume (e.g., what gas is formed when 16 g of sulfur is exposed to 200 g of 98% sulfuric acid? 140. What is the reaction equation of ammonium hydroxide with the following substances? a) Nitric acid b) Hydrochloric acid 141. How many different oxides does the element phosphorus form? Describe them. 142. What are the different types of electrolysis (give examples). For what purposes do we use electrolysis? 143. Write the reaction equations for how much % of H3PO4 mass is reduced when it is gently heated? 144. How many grams of which gas are left after a 125g mixture of hydrogen and oxygen is exploded? The volume fraction of oxygen in the initial mixture is 20%. 145. Write the equation for the reaction of potassium bichromate, potassium permanganate, and manganese (IV) oxides with hydrochloric acid. 146. Explain the quantum mechanical theory of covalent bonding with examples. 147. What chemical reactions does hydrogen sulfide enter into? 148. How many grams of which gas are left after the explosion of 125 g of a mixture of hydrogen and oxygen? The volume fraction of oxygen in the initial mixture is 20%. 149. Find the ratio of oxygen atoms in 1.25 mol of N2O4 and 4 mol of N2O5? 150. Write the physical and chemical properties of the element potassium. 151. Give phosphorus and its compounds. Give the reaction of their oxides. 152. Arrange S, C, P, H, Si in decreasing order of electron-binding ability and express them in terms of chemical properties. 153. According to the results of the analysis, the compound consists of Mg, S and O. All magnesium atoms were transferred to 14.8 g of Mg(NO3)2 and all sulfur atoms to 23.3 g of BaSO4. If 11.2 g of the compound was used for this, find the empirical formula of the compound. 154. Which element has the electron configuration 4s0 3d3 E+3?

	What are the methods of its preparation? 155. Among the compounds (oxide, acid, base, salt), which are the most common and most used in the national economy? 156. Write the physical and chemical properties of hydrogen compounds of metals? 157. Give the physical and chemical properties of carbonic acid. 158. How many grams of sodium oxide should be dissolved in 507 ml of water to make a 20% caustic sodium solution? 159. How is sulfuric acid prepared in the laboratory and in industry? 160. The rate of chemical reactions. Factors affecting the rate of chemical reactions? 161. Water hardness and methods for its removal? 162. When 134.1 g of a divalent metal hydride was dissolved in water, 896 ml (g) of a gaseous substance was released, forming a 2.5% solution. Which metal hydride is this? 163. How much (g) of acetic anhydride should be dissolved in 400 g of 91% acetic acid solution to prepare anhydrous acetic acid? 164. Among complex substances (oxide, acid, base, salt), which are the most common and most used substances in the national economy? 165. The law of equivalents. Determining the equivalents of simple and complex substances. 166. If 87.6 g of crystalline hydrate ($CaCl_2 \cdot 6H_2O$) precipitated when 320 g of a 40% saturated solution of calcium chloride was cooled, calculate the mass fraction (%) of the salt remaining in the solution. 167. Explain the lightest and heaviest gases and write their properties. 168. How is sulfuric acid produced in industry? 169. Explain what metals react with water under normal conditions? 170. How many grams of Bertolet salt with 15% additives are needed to produce 56.6 liters (approx.) of oxygen? 171. How many grams of which gas are left after detonation of 125 g of a mixture of hydrogen and oxygen? The volume fraction of oxygen in the initial mixture is 20%. 172. What are the lightest and heaviest metals, their properties, etc.? 173. In what way and from what raw materials is ammonia produced in industry? 174. What effect does carbon dioxide gas have in nature? Explain with reactions. 175. What volume (e.g., what gas) is formed when 100 g of sulfur is treated with 200 g of 98% sulfuric acid? 176. Find the mass of the acid formed by dissolving 57.75 g of P_2O_5 in water under normal conditions. 177. Salts; medium, acidic, basic, double, mixed and complex salts. Write the names of salts and methods of obtaining them? 178. Write the physical and chemical properties of sulfuric acid. 179. Preparation of nitric acid in the laboratory and industry, its properties?

	180. Write the physical and chemical properties of alkali metals. 181. When 27 g of copper salt was dissolved in 173 g of water, the mass fraction of copper in the solution formed was 6.4%. Determine which copper salt was dissolved? 182. The salt contains 28% metal, 24% sulfur, 48% oxygen. Identify the metal? 183. What reactions does cadmium metal enter into? 184. Write the chemical properties of alkaline earth metals? 185. How much sulfur (VI) oxide does 179 g of sulfuric acid correspond to? 186. When 27 g of copper salt was dissolved in 173 g of water, the mass fraction of copper in the solution formed was 6.4%. Determine which salt of copper was dissolved? 187. Give an idea of the physical properties of carbon and allotropic forms. 188. Write the equation for the reaction of phosphorus with oxygen a) in large quantities b) in small quantities? 189. Write the properties of nitric acid and give methods of its use. 190. How much (t) quicklime can be obtained from 20 t of limestone containing 96% CaC03? 191. Find the mass (kg) of coal containing 0.95 mass fraction of carbon to obtain 1000 m3 of water gas 192. When 15.8 g of potassium permanganate was heated, 0.896 1 (n.sh) of oxygen was obtained. Calculate the yield of oxygen (%). 193. Find the volume (l) of gas formed in the reaction of the product obtained when a mixture of 72 g of graphite and calcium oxide was heated at high temperature with water under conditions where the yield at each stage of the reaction was 80%. 194. Write the physical and chemical properties of aluminum. 195. With which metals does sulfuric acid react. Use of sulfate salts. 196. If the reaction yield is 50%, how much volume (n.sh) of gas is released as a result of the decomposition of 2 mol of copper(II) nitrate? 197. When 20.8 g of calcined soda was treated with a molar amount of hydrochloric acid, 4.42 l of gas was evolved in the sample. Determine the mass fraction (%) of the additive in the soda. 198. Write about the oxygen compounds and properties of sulfur. 199. Calculate the volume of gas (in the sample) formed as a result of the reaction of 5.6 g of CO with a sufficient amount of FeO. 200. The occurrence, extraction, physical and chemical properties of zinc, cadmium, mercury in nature. Write their compounds, extraction and properties. 1. Introduction. Subject and tasks of organic chemistry, history of emergence. 2. Formation of chemical bonds in organic compounds. 3. Preparation and physical properties of saturated hydrocarbons (alkanes, paraffins). 4. Chemical properties of saturated hydrocarbons (alkanes, paraffins). 5. Properties and use of saturated hydrocarbons.

	6. Coke and its processing. 7. Oil, oil products and its processing. 8. Preparation and properties of halogenated derivatives of saturated hydrocarbons - halogenated alkanes. 9. Classification of nucleophilic substitution reactions and give examples. 10. General idea of elimination (dissociation) reactions, their mechanisms 11. Polyhalogenated derivatives of saturated hydrocarbons. F2 organic compounds, their properties. 12. Preparation and properties of cycloalkanes. 13. Preparation, physicochemical properties and use of unsaturated hydrocarbons (alkenes, olefins). 14. Preparation, physicochemical properties and use of unsaturated hydrocarbons (alkynes). 15. Preparation, physicochemical properties and use of diene hydrocarbons (alkadienes). 16. Oxygen derivatives of hydrocarbons. Preparation, physicochemical properties and use of saturated monoatomic alcohols. 17. Oxygen derivatives of hydrocarbons, their preparation, physicochemical properties and use. 18. Saturated diatomic alcohols, ethylene glycol and its properties 19. Tri- and polyatomic alcohols. Preparation, physicochemical properties and use of unsaturated alcohols. 20. Preparation, physicochemical properties and use of simple ethers. 21. Preparation, physicochemical properties and use of aliphatic - aldehydes and ketones. 22. Preparation, physicochemical properties and use of saturated carboxylic acids. 23. Preparation of monobasic unsaturated carboxylic acids. 24. Properties of monobasic unsaturated carboxylic acids. 25. Fats, oils and their structure, properties and use. 26. Saturated and unsaturated aliphatic and aromatic dicarboxylic acids. 27. Heterofunctional compounds. Monobasic oxyacids. 28. Dibasic and tribasic oxyacids and aromatic oxyacids. 29. Preparation, physicochemical properties and use of aliphatic amines 30. Preparation, physicochemical properties and use of aromatic hydrocarbons (arenes). 31. Benzene hydrocarbons. Preparation, physicochemical properties and use. 32. Preparation, physicochemical properties and use of monoatomic phenols. 33. Preparation, physicochemical properties and use of diatomic and triatomic phenols. 34. Preparation, physicochemical properties and use of phenolic acids. 35. Preparation, physicochemical properties and use of aromatic aldehydes and ketones.

	36. Preparation, physicochemical properties and use of aromatic monobasic carboxylic acids. 37. Aromatic dibasic carboxylic acids. 38. Aromatic amines. Preparation, physicochemical properties and use. 39. Aminophenols and their derivatives. 40. Preparation of diazo and azo compounds, their physical and chemical properties and uses. 41. Preparation of azo dyes, their physical and chemical properties and uses. 42. Preparation of synthetic azo dyes, their physical and chemical properties and uses. 43. Polycyclic aromatic hydrocarbons. 44. Anthrocene. Preparation of phenanthrene, their physical and chemical properties and uses. 45. 3-, 4- and 5-membered heterocyclic compounds with one heteroatom. 46. Preparation of five-membered heterocyclic compounds with one heteroatom, their physical and chemical properties and uses 47. Five-membered heterocyclic compounds with two heteroatoms and three or more heteroatoms. 48. Preparation, physicochemical properties and uses of 6-membered monoheteroatom heterocyclic compounds 49. Preparation of 6, 7, 8-membered heterocyclic compounds, their physicochemical properties and uses. 50. Preparation of carbohydrates and monosaccharides, their physicochemical properties and uses. 51. Preparation of di- and polysaccharides, their physicochemical properties and uses. 52. Nitro compounds and their preparation and properties. 53. What classes are hydrocarbons divided into depending on the bonding of C and H atoms in their molecules? 54. What substances do alkanes form when burning at temperatures above 3000C? 55. Dehydrogenation reactions of alkanes. 56. What reaction did Nobel Prize laureate, academician N. Semyonov, observe when halogens were applied to alkanes? 57. Nitration reaction in alkanes. 58. What does a mixture of methane and chlorine explode under the influence of sunlight? 59. What does methane and chlorine produce in the first stage under the influence of light? List all the stages of chlorination reactions. 60. Chemical properties of nitro compounds. 61. Benzene and methods for its preparation. 62. Reactions of representatives of cycloalkanes that occur with bond cleavage. 63. Reactions specific to cyclopropane and cyclobutane. 64. Reduction reactions of cyclic ketones. 65. What is 1,3-dibromopropane reacted with in the G. Gustavson reaction? Write its reaction. 66. Write and explain the reaction equation for the preparation of

	cycloalkanes by reacting with 1,4-dibromobutane in the G. Gustavson reaction? 67. Write and explain the reaction equation for the formation of cycloalkanes containing 5 hydroxyl groups from cyclohexane alcohols? 68. Write the halogenation of arenes and the Beilstein equation? 69. Write the formation and properties of cyclohexane? 70. Give examples of isomerisms in alkenes. 71. What is the rule for the addition of hydrogen halides to alkenes and give examples of them. 72. What do alkenes form when KMnO4 is oxidized in an acidic medium? Write the oxidation of KMnO4 to butene in an acidic medium. 73. What do alkenes form when KMnO4 is oxidized in an aqueous medium. Write the oxidation of KMnO4 to butene in an aqueous medium. 74. Give examples of the inverse rule to V. Markovnikov's rule. 75. What is obtained by reacting monohalide alkanes with KOH? What is formed by reacting C3H7Cl with KOH. 76. Which metals are used to react dihalide alkanes to obtain alkenes. 77. Write the preparation and properties of alkynes and give examples. 78. How many double bonds do diene hydrocarbons have? 79. Explain the location of double bonds in alkadienes? 80. Methods for obtaining alcohols. 81. What is the final product in the reaction of acetone and acetylene? 82. The formula of natural rubber and how is natural rubber obtained? 83. Write all the isomers of heptanol and name the isomers. 84. Amines and their classification. 85. Nomenclature of amines and their preparation. 86. Amines and their physical properties. 87. Preparation and physical properties of acetylene in the laboratory and industry 88. Chemical properties of amines 89. Explain the chemical properties of acetylene. 90. Aromatic amines and their preparation 91. Physical and chemical properties of aromatic amines 92. Uses and isomerism of aromatic amines 93. Isomerism and types of isomerism? 94. Chlorination of alkanes. 95. Sulfochlorination reaction of alkanes. 96. The course of the nitration reaction of alkanes and its temperaments. 97. Physical properties of alkanes and their distribution in nature. 98. Systematic nomenclature of alkanes. 99. Chemical properties and preparation of alkenes 100. Reactions for the preparation of alkanes. 101. Preparation and physical properties of alkenes. 102. Alkenes and their combination reactions.

	103. General formulas of hydrocarbons and general combustion formulas. 104. Give examples of hybridization in hydrocarbons for each class. 105. Uses of alkanes. 106. Uses of alkenes. 107. Preparation, physical and chemical properties of alkynes. 108. Chemical properties of alkynes. 109. Physical properties and use of alkynes. 110. Preparation of diene hydrocarbons. 111. Chemical properties of diene hydrocarbons. 112. Physical properties and isomerism of diene hydrocarbons. 113. Isomerism in hydrocarbons. 114. Preparation and use of diene hydrocarbons. 115. Preparation and use of alkynes. 116. Representatives, structure and hybridization of cycloalkanes 117. Nomenclature of cycloalkanes. 118. Physical properties and isomerism of cycloalkanes 119. Chemical properties of cycloalkanes 120. Preparation and chemical properties of cycloalkanes 121. Uses and methods of preparation of cycloalkanes 122. Aromatic hydrocarbons and their representatives 123. Preparation and physical properties of aromatic hydrocarbons 124. Chemical properties of aromatic hydrocarbons 125. Nomenclature of aromatic hydrocarbons 126. Combustion and oxidation reactions in aromatic hydrocarbons 127. Hybridization and coupling reactions of aromatic hydrocarbons 128. Natural sources of hydrocarbons 129. Oil and oil refining products 130. Oil extraction and its fractions 131. Thermal and catalytic cracking 132. Natural gas and coal 133. Monoatomic alcohols, their nomenclature and isomerism 134. Preparation and physical properties of monoatomic alcohols 135. Chemical properties of monoatomic alcohols 136. Preparation and use of monoatomic alcohols 137. Polyatomic alcohols, their nomenclature and isomerism 138. Preparation and physical properties of polyatomic alcohols 139. Chemical properties of polyatomic alcohols 140. Nomenclature of diatomic and triatomic alcohols 141. Use of polyhydric alcohols 142. Phenols, their nomenclature and isomerism 143. Preparation and physical properties of phenols 144. Chemical properties of phenols 145. Preparation and use of phenols 146. Aromatic alcohols, their nomenclature and isomerism 147. Preparation and physical properties of aromatic alcohols 148. Chemical properties of aromatic alcohols 149. Hybridization and use of aromatic alcohols 150. Qualitative reactions specific to aromatic alcohols (specific reactions)

	151. Oxocompounds and their types 152. Aldehydes and their nomenclature and isomerism 153. Preparation and physical properties of aldehydes 154. Chemical properties of aldehydes 155. Hybridization and use of aldehydes 156. Qualitative reactions specific to aldehydes (specific reactions) 157. Silver mirror reaction. Explain with examples. 158. Ketones, their nomenclature and isomerism 159. Preparation and physical properties of ketones 160. Chemical properties of ketones 161. Hybridization and use of ketones 162. Qualitative reactions characteristic of ketones (specific reactions) 163. Monobasic carboxylic acids, their nomenclature and isomerism 164. Hybridization and use of monobasic carboxylic acids 165. Preparation and physical properties of monobasic carboxylic acids 166. Chemical properties of monobasic carboxylic acids 167. Reactions characteristic of monobasic carboxylic acids (specific reactions) 168. Dibasic carboxylic acids, their nomenclature and isomerism 169. Preparation and physical properties of dibasic carboxylic acids 170. Chemical properties of dibasic carboxylic acids 171. Hybridization and use of dibasic carboxylic acids 172. Reactions characteristic of dibasic acids (specific reaction) 173. Ethers, their nomenclature and isomerism 174. Preparation and physical properties of ethers 175. Chemical properties of ethers 176. Uses and hybridization of ethers 177. Ethers, their nomenclature and isomerism 178. Preparation and physical properties of ethers 179. Chemical properties of ethers 180. Uses and hybridization of ethers 181. Open and closed ring esters and etherification reactions 182. Fats and their isomerism 183. Preparation and physical properties of fats 184. Saponification reactions of fats 185. Areas of use of fats 186. Fats and oils 187. Carbohydrates and their classification 188. Monosaccharides and their occurrence in nature distribution 189. Glucose synthesis reactions 190. Preparation and physical properties of monosaccharides 191. Chemical properties of monosaccharides 192. Disaccharides and polysaccharides. 193. Starch and its properties 194. Polycondensation reactions. 195. Preparation and use of saturated aromatic alcohols 196. Preparation and properties of saturated aromatic alcohols 197. Amino acids and proteins, their preparation.

	198. Classification of monosaccharides 199. Give examples of polysaccharides. Give areas of application and importance. 200. Amino acids. Importance of amino acids. 201. Proteins. Importance of proteins. Qualitative reactions specific to proteins 1. The goals and objectives of the subject of chemistry teaching methodology at school. 2. The main methods of studying chemistry teaching methodology at school. 3. Methodology for teaching the theoretical foundations of chemistry in a school chemistry course based on educational technologies. 4. Methods of using experiments, laboratory and practical exercises demonstrated in school chemistry lessons. 5. Methods of organizing chemistry lessons in a school chemistry course. 6. Methodology for organizing and conducting optional classes in chemistry at school. 7 Methodology for teaching atomic molecular theory in a school chemistry course. 8 Methodology for studying matter and its properties in a school chemistry course. 9 Methodology for teaching students the basic laws of chemistry in a school chemistry course. 10. Methodology for teaching the main classes of inorganic compounds in the school chemistry course based on educational technologies. 11. Methodology for teaching the periodic system of D.I. Mendeleev in the school chemistry course. 12. Methodology for teaching the theory of solutions and electrolytic dissociation in the school chemistry course based on educational technologies. 13. Theory of indicators in the school chemistry course. 14. Methodology for teaching the theories of chemical kinetics, catalysis and equilibrium. 15. Methodology for teaching the topic of general properties of oxygen group elements in the 8th grade based on interactive methods. 16. Methodology for teaching the topic of halogens in the 8th grade based on pedagogical technologies. 17. Methodology for teaching the general properties of carbon group elements based on problem-based educational technologies. 18. Methodology for teaching the topic of the section on the elements of the main group of groups I and II. 19..Theory of the formation of complex compounds. 20. Methodology for conducting a lesson and its types in the school chemistry course 21. Methodology for teaching the theory of the formation of inorganic compounds based on educational technologies. 22. Methodology for teaching methods for naming inorganic substances and their types.

	23. Methodology for teaching the general properties of monounsaturated and aromatic and unsaturated hydrocarbons in the school chemistry course based on educational technologies. 24. Methodology for teaching the topic of unsaturated hydrocarbons in the school chemistry course. 25. Methodology for teaching the topic of benzene in the school chemistry course in an interactive way. 26. Methodology for teaching the topic of oxycompounds in the school chemistry course in an interactive way. 27. Methodology for teaching the topic of carbohydrates in the school chemistry course. 28. Methodology for teaching the topic of nitrogen-containing organic compounds in the school chemistry course based on cluster methods. 29. Methodology for teaching the topic of proteins in the school chemistry course based on interactive methods. 30. Methodology for teaching methods of chemical and mineral fertilizer production in Uzbekistan. 31. Methodology for teaching the stages of development of chemistry in the school chemistry course. 32. Atomic-molecular education of students. Chemical formulas. 33. Scientific foundations of teaching the basic laws of chemistry (based on the law of constant composition) in the school chemistry course based on educational technologies. 34. Methodology for teaching students the use of the main classes of inorganic substances. 35. Development and general description of the concept of the periodic system and chemical bonding. 36. Methodology for teaching the topic of bromine in the school chemistry course. 37. Methodology for teaching the theoretical foundations of complex compounds in the school chemistry course. 38. Methodology for conducting experiments on iron, chromium and manganese and their compounds in the school chemistry course. 39. Formation of inorganic chemistry as a science and study of their specific properties. 40. Methodology for teaching the physical properties of inorganic substances. 41. Introducing students to the rules of technical safety. 42. Formation of students' skills in working with laboratory equipment and reagents. 43. Methodology for teaching students the purification and properties of substances. 44. Methodology for checking and conducting written work in a school chemistry course 45. Methodology for conducting experiments on types of chemical reactions for students. 46. Methodology for assessing and conducting students in a school chemistry course. 47. Methodology for teaching experiments on combustion, oxygen and their properties in school chemistry courses.

	48. Methodology for teaching experiments on hydrogen and its properties in chemistry lessons. 49. Methodology for teaching experiments on the hydrolysis of salts based on educational technologies. 50. Methodology for teaching types of chemical reactions based on interactive educational methods. 51. Methodology for conducting experiments on the physical properties of water and water. 52. Methodology for teaching the theory of electrolytic dissociation in the 8th grade based on educational technologies. 53. Methodology for conducting experiments on oxidation-reduction reactions for students in the 8th grade. 54. Methodology for conducting experiments on the properties of nonmetals, sulfur and its compounds in the school chemistry course. 55. Methodology for teaching the rate of chemical reactions based on educational technologies. 56. Methodology for conducting chemical experiments on nitrogen and its compounds, nitric acid in the school chemistry course. 57. Methodology for teaching the properties of phosphorus, phosphoric acid. 58. Methodology for conducting experiments on the general properties of silicon. 59. Methodology for conducting experiments on mineral fertilizers. 60. Methodology for teaching metals and their general properties in the school chemistry course based on pedagogical technologies. 61. Methodology for conducting experiments on the general properties of alkali metals (lithium). 62. Methodology for teaching elements of the VIII main group in the school chemistry course. 63. Methodology for teaching amphoteric properties of aluminum and zinc. 64. Methodology for conducting qualitative reactions characteristic of manganese and iron. 65. Methodology for teaching copper and lead in the school course. 66. Methodology for teaching methane and its homologues. 67. Methodology for teaching halogens in the school chemistry course. 68. Methodology for conducting experiments on saturated hydrocarbons in the school organic chemistry course. 69. Methodology for teaching the topic of hydrochloric acid in inorganic chemistry lessons. 70. Methods for teaching the properties of salts in the course of inorganic chemistry through the case-study method. 71. Methodology for teaching the chemical properties of acids. 72. Methodology for conducting the structure of chemical formulas (on the example of organic chemistry). 73. Methodology for conducting experiments on carbon and its properties in the school chemistry course. 74. Methodology for teaching proteins and their properties in school chemistry lessons. 75. Methodology for teaching polymerization reactions in school

	chemistry lessons. 76. Methodology for using and conducting a book in a school chemistry course. 77. Methodology for forming initial chemical concepts. 78.. Teaching the theoretical foundations of chemical reactions and the processes occurring in them. 79.Methodology of preparing visual aids in chemistry lessons. 80.Methodology of explaining the theory of chemical bonds on a scientific basis. 81.Methodology of teaching the general properties of phosphorus and its compounds in the school chemistry course. 82. Methodology of compiling and conducting lesson plans in the school chemistry course. 83.Methodology of using the theory of indicators in the chemistry course.. 84.Solving problems on the topic of oxidation-reduction reactions. 85.How many grams of 10% nitric acid solution are needed to neutralize 120 g of lithium hydroxide. 86.Methodology of solving and conducting problems on the rate of chemical reactions and equilibrium 87.Methods of solving chemical problems specific to nitrogen and its compounds, nitric acid in the school chemistry course. 88.Methodology of conducting experiments on the properties of phosphoric acid. 89. How many grams of lithium sulfate salt are formed when 300 g of lithium oxide reacts with a sufficient amount of sulfuric acid. 90. Methodology for conducting qualitative reactions specific to chromium and iron. 91. Methodology for teaching the properties of copper in a school chemistry course based on pedagogical technologies. 92. Methodology for conducting experiments on the general properties of alkali metals (potassium). 93. Methodology for conducting experiments on the general properties of alkaline earth metals (magnesium). 94. Methodology for teaching the compounds and properties of tin and zinc. 95. Methodology for conducting qualitative reactions specific to manganese, chromium and iron. 96. The fact that the subject of teaching chemistry at school is a teaching subject 97. Methodology for teaching the elements of the III main group in a school chemistry course. 98. Methodology for teaching the fundamentals of chemistry in a school chemistry course based on educational technologies. 99. Methodology for teaching students the basic laws of chemistry (on the example of the law of conservation of mass of substances) in a school chemistry course. 100. Methods for organizing chemistry lessons in a school chemistry course. 101. Methodology for organizing and conducting optional classes in chemistry at school. 102. Methods of demonstration in school chemistry lessons, use in

	practical exercises. 103. Methodology for teaching students the topic of bromide acid in the school chemistry course. 104. Methods for solving and teaching problems related to the main classes of inorganic compounds in the school chemistry course. 105 Methodology for teaching the basic laws of chemistry (on the example of Avogadro's law). 106 Methodology for teaching the topic of the Periodic System in the school chemistry course. 107. Methodology for teaching the topic of buffer solutions in the school chemistry course based on educational technologies. 108. Methodology for teaching the VI-main group elements in the school chemistry course. 109. Methodology for teaching the topic of chemical equilibrium. 110. Methodology for teaching the topic of general properties of elements of the selenium group in the 9th grade using interactive methods. 111. Methodology for teaching the topic of iodine in the 7th grade using pedagogical technologies. 112. Methodology for teaching the topic of general properties of the germanium element using problem-based educational technologies. 113. Methodology for teaching the topic of elements of the main group of group III. 114. Methodology for teaching methods for the production of potash fertilizers in Uzbekistan. 115. Methodology for teaching the theory of the structure of organic chemistry in the school chemistry course. 116. Methodology for teaching methods for the production of phosphorus fertilizers in Uzbekistan. 117. Methodology for teaching the topic of the main classes of inorganic substances. 118. Methodology for teaching the general properties of unsaturated hydrocarbons in the school chemistry course based on educational technologies. 119. Methodology for teaching the topic of pure solutions in the school chemistry course. 120. Methodology for teaching the topic of basic oxides in the school chemistry course in an interactive way. 121. Methodology for teaching the structural theories of crystalline substances. 122. Methodology for teaching the topic of the cadmium element in the school chemistry course. 123. Methodology for teaching the topic of silver in the school chemistry course based on cluster methods. 124. Methodology for teaching the topic of acidic salts in the school chemistry course based on interactive methods. 125. Methodology for teaching methods for the production of nitrogen fertilizers in Uzbekistan. 126. Methodology for teaching the stages of development of chemistry in the school chemistry course.

	127. Methodology for teaching students the topic of chemical formulas. 128. Scientific foundations of teaching the topic of non-ferrous metals in the school chemistry course based on educational technologies. 129. Methods for explaining to students the distribution of the main classes of inorganic substances in nature with theoretical foundations 130. Development and general description of the concept of chemical bonding. 131. Methodology for teaching the elements of the IV-main group in the school chemistry course. 132. Methodology for teaching the basics of obtaining and using them in the school chemistry course. 133. Methodology for teaching arsenic and its compounds in the school chemistry course. 134. Formation of inorganic chemistry as a science and studying their specific properties. 135. Methodology for teaching the elements of the IV-main group in the school chemistry course. 136. Methodology for teaching elements of the V-main group in the school chemistry course. 137. Formation of skills in working with equipment and reagents used in the chemistry laboratory. 138. Methodology for teaching students the properties of substances and substances. 139. Introducing students to experiments on the physical and chemical properties of acids in the laboratory. 140. Teaching students the methodology for conducting experiments on the types of chemical reactions. 141. Methodology for teaching students the basic laws of chemistry, the laws of conservation of mass. 142. Methodology for teaching experiments on oxygen and its properties in school chemistry courses. 143. Methodology for teaching experiments on hydrogen and its properties and acids in chemistry lessons. 144. Methodology for teaching experiments on the method of obtaining inorganic compounds based on the "Case-Study" method. 145. Methodology for teaching experiments on inorganic compounds based on interactive methods. 146. Methodology for conducting experiments on the properties of water and solutions. 147. Methodology for teaching experiments on the theory of electrolytic dissociation and hydrolysis of salts in the 8th grade based on educational technologies. 148. Methodology for conducting experiments on combination reactions for students in the 9th grade. 149. Methodology for conducting experiments on the properties of non-metals and their compounds in the school chemistry course. 150. Experiments on the methodology for conducting experiments on the rate of chemical reactions and equilibrium.

	151 Methodology for conducting chemical experiments specific to nitrous acid in a school chemistry course. 152. Methodology for conducting experiments on phosphorus and its properties. 153. Methodology for conducting experiments on the general properties of carbon and silicon. 154. Methodology for conducting experiments on mineral fertilizers. 155. Methodology for teaching metals and their general properties in a school chemistry course based on technology. 156. Methodology for conducting experiments on the general properties of the element cobalt. 157. Methodology for conducting experiments on the chemical properties of alkaline earth metals. 158. Experiments on boron and its properties. 159. Methodology for conducting qualitative reactions specific to the element tungsten. 160. Methodology for conducting experiments on compounds of copper and silver elements. 161. Methods and methodology for solving problems related to helium. 162. Methodology for solving problems related to percent concentration. 163. Methodology for solving benzene and its homologues in the school chemistry course. 164. Teaching problem solving methods in organic chemistry lessons. 165. Methodology for teaching experiments specific to alcohols in the inorganic chemistry course using the “Cluster” method. 166. Methodology for conducting laboratory and practical classes at school. 167. Methodology for teaching analytical chemistry at school. 168. Methodology for teaching amino acids and their properties in the school chemistry course. 169. Methodology for teaching fats and their properties in school chemistry and biology lessons. 170. Methods for teaching the mechanism of substitution reactions in school chemistry lessons 171. Methodology for obtaining and conducting written work in a school chemistry course 172. Methodology for forming initial chemical concepts. 173. Methodology for teaching the theoretical foundations of chemical reactions and the processes occurring in them. 174. Methodology for preparing equipment and demonstration materials in chemistry lessons. 175. Methodology for explaining the theory of chemical bonds (ionic bonds) on a scientific basis. 176. Methodology for teaching the general properties of nickel and its compounds in a school chemistry course. 177. Methodology for obtaining and teaching the properties of medium salts. 178.Methodology of conducting chemical experiments .

	179.Methodology of conducting chemical experiments specific to iodic acid. 180.Methodology of creating and conducting tests in the school chemistry course 181 Methods of solving problems related to the rate of chemical reactions 182.Methodology of conducting experiments on the properties of bismuth and its compounds, 183.Methodology of conducting experiments on the properties of phosphorus and phosphoric acid in the school chemistry course. 184.Methodology of conducting experiments on the general properties of silicon. 185.Methodology of conducting halogens and their specific qualitative reactions. 186.Methodology of teaching the first additional group of metals and their general properties in the school chemistry course based on pedagogical technologies. 187.Methodology of teaching the theories of the structure of crystalline substances 188.Methodology of teaching the general properties of alkaline earth metals. 189. Methodology for teaching the theories of the structure of crystalline substances. 190. Methodology for conducting experiments on potassium fertilizers. 191. Methodology for teaching reactions involving catalysts that affect the reaction medium. 192. Methodology for teaching the topic of general properties of boron group elements in grade 8 using interactive methods. 193. Methodology for teaching the topic of inert gases in grade 8 using pedagogical technologies. 194. Methodology for teaching the topic of general properties of germanium group elements using problem-based educational technologies. 195. Methodology for teaching the topic of the section on elements of the main group of group II. 196. Methodology for teaching the theory of the formation of complex salts 197. Methodology for teaching the topic of unsaturated hydrocarbons using the cluster method. 198. How much volume (in liters) of CO2 is formed when 110 g of propane (C3H8) is completely burned? 199. Methodology for teaching the topic of acids based on educational technologies. 200. Methodology for teaching the physical and chemical properties of elements.
The exam format	Writing
Teaching/learning and examination requirements	The State Attestation in the specialty subjects is conducted in the form of a written test. The written test option contains 5 questions. The written test options are composed of questions on the subjects of inorganic chemistry, organic chemistry and chemistry teaching methods.

	1 hour and 30 minutes are given for the written test. The overall mastery indicator for the State Attestation in the specialty subjects is evaluated from 60 to 100 points: One option contains 5 questions, and a maximum of 20 points are given for each correct answer.
Bibliography	1.N.A.Parpiyev, Kh.R.Rakhimov, A.G.Muftakhov. Theoretical foundations of inorganic chemistry. Textbook. Tashkent: "U'zbekiston", 2000. 2.Q.Akhmerov, A.Jalilov, R.Saifutdinov. General and inorganic chemistry. Textbook. Tashkent: "U'zbekiston". 2003. 3.Yu.T.Tashpu'latov, Sh.S.Ishokov. Inorganic chemistry. Textbook. Tashkent: "U'qituv". 1992. 4.E.Kodirov, A.Muftakhov, Sh.Norov. Practical exercises in inorganic chemistry. Textbook. Tashkent: "U'zbekiston", 1996. 5.Yu.T.Tashpu'latov, N.G.Rakhmatullayev, A.Yu.Iskandarov. Solving problems in inorganic chemistry. Tashkent. -2003. 6.N.A.Parpiyev, A.G.Muftakhov, Kh.R.Rakhimov. Inorganic chemistry. Tashkent: "U`zbekiston"-2003. 7.Sh.Daminova, Kh.Turayev, S.Aliyorova. Laboratory exercises in inorganic chemistry. T., 2006. 8. Abdusamatov A. Organik kimyo. Darslik. T.: 2005 yil 9. Umarov B. Organik kimyo. O‘quv qo‘llanma. T.: Iqtisod moliya- 2007. 10. Sobirov Z. Organik kimyo. Darslik. Toshkent. – 1999 yil.1. 11.M.Nishonov, Sh.Mamajonov, V.Xo‘jayev “Kimyo o‘qitish metodikasi”, Toshkent, “O‘qituvchi”, 2002 y. 12. Sh.V.Abdullayev D.X.Muxitdinova. Kimyo o‘qitish metodikasidan uslubiy qo‘llanma. Namangan, 2003 yil. 13. N.G.Raxmatullayev, N.T.Omonov, Sh.M.Mirkomilov. Kimyo o‘qitish metodikasi. Toshkent. Iqtisod-moliya-2013 y. - 320 b. 14. Iskandarov A.Yu., Azamatova D.S., Ismatov I.Sh. Kimyo o‘qitish metodikasi. Darslik.-Toshkent: “Zebo Prints”, 2024. – 367 garov. 15. Sultonov M.M., Julboyev T.A., Xolboyev O.N., Baqaxonov A.A., Babayev B.N. Axborot texnologiyalarini kasbiy faoliyatda qo‘llash. O‘quv qo‘llanma / Ilm nuri bosma, 2024.-188 b. 16. I.A.Toshev., I.I.Ismoilov. R.R.Ro'ziev. A.T.Jalilov “Anorganik kimyodan mashk va masalalar to'plami” Toshkent “O'qituvchi” 2003 y.
Evaluation of the State Attestation in Specialized Subjects C R E T I N E	60110800 - Procedure and assessment criteria for conducting the State attestation in written form for students of the chemistry major The State attestation of graduate students in the subjects of inorganic chemistry, organic chemistry and chemistry teaching methods is conducted in a multiple-choice written form. The answer to each question of the "written" options is evaluated with 20 points. Each written answer in the state attestation is evaluated based on the following criteria: - if the correct and complete answer to the given question is written, the content and essence of the question are correctly and consistently covered, as well as if the creative approach is used, and the logical integrity of the answer is achieved, the mastery

<table>
<tr>
<td></td>
<td>indicator is evaluated in the range of 17.1 - 20 points;
- if the correct answer to the given question is written, the content of the question is fully covered, the mastery indicator is evaluated in the range of 14.1 - 1 7 points;
- if the oral answer to the given question is incorrect or superficial, but the content of the given question is not fully explained, the mastery indicator is evaluated in the range of 11-14.1 points;
- if the answer to the given question is incorrect or superficial, but the essence of the problem is not fully explained, the mastery indicator is evaluated in the range of 0 - 10.9 points. (17.1-20 points - excellent, 14-17 points - good, 11-14.1 points - satisfactory, 0-10.9 points - unsatisfactory).
<table>
<tr><th>5 stars</th><th>100 points</th><th></th><th>Evaluation criteria</th></tr>
<tr><td>5</td><td>90-100</td><td>Excel lent</td><td>When a student is considered to be abl independent conclusions and decisio creatively, observe independently, knowledge he has gained in practice, u know, express, and narrate the esser subject (subject), and have an idea subject (subject)</td></tr>
<tr><td>4</td><td>70-89,9</td><td>Good</td><td>When the student is considered to b observe independently, apply the kno has gained in practice, understan express, and narrate the essence of t (subject), and has an idea about th (subject)</td></tr>
<tr><td>3</td><td>60-69,9</td><td>Satisfa ctory</td><td>When the student is found to be able to knowledge he has gained in understands, knows, can express, and n essence of the subject (subject), and h about the subject (subject)</td></tr>
<tr><td>2</td><td>0-59,9</td><td>Unsatis factory</td><td>When it is determined that the stude mastered the science program, understand the essence of the science and does not have an idea about th (subject)</td></tr>
</table>
NOTE: Graduates who are dissatisfied with the grade given during the final state attestation process have the right to appeal to the appeal commission within 24 hours from the date of announcement of the final state attestation scores. Any problems that may arise between the final state attestation commission and the student regarding the assessment scores will be considered by a special appeal commission and concluded in agreement with the chairman of the SAC.</td>
</tr>
<tr>
<td>Evaluation criteria for the final qualification work</td>
<td>The volume and formalization of the BMI in terms of requirements (norm: natural areas - no less than 50 pages, social areas - no less than 70 pages): meets the requirements - 10 points, partially meets the requirements - 7 points, there are deviations from the requirements - 4 points.
2. The topic was selected on the basis of state and institute grant</td>
</tr>
</table>

	projects or on current problems: included in the state program - 8 points, according to the grant project - 7 points, according to the institute program - 6 points, according to current problems - 5 points. 3. The relevance of the topic: sufficiently justified - 5 points, insufficiently justified - 3 points, unclear - 2 points. 4. The clear expression of goals and objectives: clear - 7 points, not completely clear - 5 points, unclear - 3 points. 5. The degree of use of scientific research methods in the implementation of the BMI: full - 7 points, partial - 5 points, insufficient - 3 points. 6. The degree of novelty and reliability of the results obtained: the result is new - 8 points, previously obtained - 6 points, not fully reliable - 3 points. 7. The presence of recommendations for production in the conclusion of the BMI: there is a recommendation for direct production - 6 points, recommended for use in the social sphere (education, environmental protection, spiritual and educational ...) - 5 points, no recommendation - 3 points. 8. The degree of critical assessment of the graduate's results on the topic: clear - 8 points, not completely clear - 6 points, not critically assessed - 4 points. 9. The scientific nature of the work: based on scientific research - 8 points, in a mixed form - 5 points, in a referential nature - 3 points. 10. Level of use of literature: full use of scientific and practical journals, monographs, works of leading scientists - 8 points, limited use of scientific literature - 6 points, only textbooks, lecture notes, manuals and reference books - 4 points. 11. Grading of the graduate's report: excellent - 10 points, good - 7 points, satisfactory - 6 points. 12. Answers to the questions: complete - 8 points, average - 6 points, satisfactory - 4 points. 13. Assessment of the BMI by an external reviewer: excellent - 7 points, good - 6 points, satisfactory - 5 points. 14. The final score assigned to the BMI is _____ points.