



**ZIAUDDIN UNIVERSITY**  
EXAMINATION BOARD

# **Secondary School Certificate (SSC)**

## **Examination syllabus**

### **CHEMISTRY IX**

**Based on Provincial revised curriculum  
(Sindh)**



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## PREFACE

Ziauddin University Examination Board (ZUEB) was established by the Sindh ACT XLI 2018, with the aim of improving the quality of education. The Board administers examinations for the Secondary School Certificate (SSC) and Higher Secondary School Certificate (HSSC) based on the latest Reviewed National Curriculum by Directorate Curriculum Assessment and Research (DCAR) Sindh. ZUEB has a mandate by Ordinance to offer such examination services to English /Urdu and Sindhi medium candidates for SSC and HSSC from private schools in Sindh. This examination syllabus exemplifies ZUEB's commitment to provincial educational goals

The Examination Board has prepared with the help of subject professors, subject wise syllabus. It is important to make the difference between syllabus and curriculum. The syllabus of a subject is considered as a guide for the subject teacher as well as the students. It helps the students understand the subject in detail. It also helps students to anticipate what is expected from them while preparing for the exams.

This examination syllabus brings together all those cognitive outcomes of the Provincial Curriculum statement which can be reliably and validly assessed. While the focus is on the cognitive domain, particular emphasis is given to the application of knowledge and understanding.

The examination syllabus is uploaded on the ZUEB website. This is done to help affiliated schools in planning their teaching. It is the syllabus, not the prescribed textbook which is the basis of the ZUEB examinations. In addition, the ZUEB examination syllabus is used to develop learning support materials for students and teachers. The examination board stand committed to all students who have embarked upon the SSC, and HSSC courses in facilitating their learning outcomes. Our examination syllabus document ensures all possible support.

On the Ziauddin University Examination Board website a tab e –resource is made available which provides resource material in all subjects both in text form in line with the curriculum and also videos on topics to give students access to learn at their own pace and own time. These 15 to 20 minutes videos are prepared around subject concept / topics. These videos are available to the students for revisiting a lesson taught by their teacher or watch it prior to the lesson and as a reinforcement strategy. The work on videos is in progress and new titles will be uploaded.

*Please look out for the videos on the given website*



Humbly Yours;

**Shahbaz Nasim**  
**Academic Head**

## **RATIONALE FOR THE REVIEWED PROVINCIAL CURRICULUM**

The process of revising the National Curriculum 2006 was initiated in August 2004 when newly elected government of Pakistan decided to introduce education reform in the country. The education reform process included the announcement of new National Education Policy. National Education Census and changing the curricula (Ministry of Education, 2009)

In reality, change in secondary school curriculum was initiated in 2006 and as result, scheme of studies for classes I to XII was reviewed and curriculum of 25 compulsory subjects.

The 18th Amendment to the constitution of Pakistan has reconfigured the federal and provincial relationship by abolishing the “concurrent legislative list”. The Act (2010) provides the provinces with strong legislative and financial autonomy in education, health, and other social sectors. Major implication of the 18th Amendment for education is that the curriculum, syllabus, planning, policy, centres of excellence and standards of education will fall under the purview of the provinces. This was a big step forward for education.

In Sindh the Curriculum review team was assigned a task by the School Education Department, Government of Sindh to review the National Curriculum 2006 for all subjects and prepare a revised version that best suits the needs of the students teachers and meets the spirit of the 18<sup>th</sup> amendment.

Subject wise curriculum review committees were formed. Curriculum review team critically examined the contextual and textual parts and aligned the different sections horizontally and vertically of the Curriculum. The Bureau of Curriculum (BOC) played vital role in organizing the workshops and meetings at Hyderabad for the completion of task. The positive support from a number of educationists, researchers and teachers helped in completing the mammoth task of curriculum revision.

On the DCAR website [http://dcar.gos.pk/BoC\\_Other\\_Pages/curriculum\\_dev.html](http://dcar.gos.pk/BoC_Other_Pages/curriculum_dev.html) the national curriculum as well as the revised curriculums are all placed for easy reference.

The Ziauddin University Examination Board Examination syllabi for SSC and HSSC are prepared with the Sindh Revised curriculum. Up till now following subject text books have been developed as per the revised curriculum.

## **AIMS AND OBJECTIVES:**

### **AIMS:**

This two-year study of Chemistry aims to develop in all students:

- a scientific understanding of the physical world.
- cognitive, affective, and psychomotor abilities appropriate to the acquisition and use of
- chemical knowledge, understanding, attitude, and skills.
- an appreciation for the products and influences of science and technology, balanced by a
- concern for their appropriate application.
- an understanding of the nature and limitations of scientific activity.
- an ability to apply the understanding of Chemistry to relevant problems (including those
- from everyday real-life) and to approach those problems in rational ways.
- respect for evidence, rationality and intellectual honesty.
- the capacities to express themselves coherently and logically, both orally and in writing,
- and to use appropriate modes of communication characteristic of scientific work.
- the ability to work effectively with others.
- 

### **OBJECTIVES:**

A statement of objectives relevant to each of the general aims is listed below. The sequence is in no particular order.

#### **Understanding the physical world:**

Students should understand the scientific concepts inherent in the theme for each chapter and be able to:

- State, exemplify, and interpret the concepts.
- Use appropriately, fundamental terms and classification related to the concepts.
- Cite, explain or interpret, scientific evidence in support of the concepts.
- Using appropriate cognitive, affective and psychomotor abilities:

#### **Students should show ability to:**

- formulate questions that can be investigated by gathering first or second-hand data.
- Find relevant published background information.
- Formulate hypotheses and make predictions from them.
- Plan an investigation and carry out the planned procedure.
- Use appropriate and relevant motor skills in carrying out investigations.
- Observe phenomena and describe, measure and record these as data.
- Classify, collate and display data.
- Curriculum for chemistry grades ix & x 2017 3
- Construct and/or interpret visual representations of phenomena and relationships (diagrams,
- Graphs, flowcharts, physical models).
- Analyze data and draw conclusions.
- Evaluate investigative procedures and the conclusions drawn from such investigations.
- Understanding the nature and limitations of scientific activity:
- For each facet of scientific activity selected for study, students should:
- Describe and exemplify it.
- Use appropriately any fundamental terms and classification related to it.

- Recognize that the problem-solving nature of science has limitations.
- Acknowledge that people engaged in science, a particularly human enterprise, have the
- Characteristics of people in general.
- Appreciating influences of science and technology:
- Recognize that the technology resulting from scientific activity influences the quality of life
- And economic development through or by improvements in medical / health care, nutrition, And agricultural techniques.

Explain that these influences may be the result of unforeseen consequences, rapid

- Exploitation, or rapid cultural changes.
- Realize that advances in technology require judicious applications.
- Respecting evidence, rationality and intellectual honesty:
- Display respect for evidence, rationality and intellectual honesty given the number of
- Emotive issues in the area of chemistry.
- Showing capacities to communicate:
- Comprehend the intention of a scientific communication, the relationship among its parts and its relationship to what they already know.
- Select and use the relevant parts of a communication.
- Translate information from communications in particular modes (spoken, written, tables, graphs, flowcharts, diagrams) to other modes.
- Students should actively participate in group work and:
- Share the responsibility for achieving the group task.
- Show concern for the fullest possible involvement of each group member



**EXAMINATION SYLLABUS WITH SCHEME OF ASSESSMENT**

	CHEMISTRY IX			Marks Distribution			Total	
	SLOs	Categorization			MCQs	CRQs		ERQs
	Students should be able to:	K	U	A				
Unit -1  Fundamentals Of Chemistry  <b>Weightage:</b> <b>12</b>	1. Know the historical background of chemistry.	*			1			
	Explain the contribution of Muslim scientists in the development of chemistry.		*					
	1.1 .1 Define chemistry	*				1		
	1.1.2 Importance in daily life.	*						
	1.2 Identify and explain different branches of chemistry with the help of examples.	*	*			2		
	1.21 Differentiate between main branches of chemistry.			*				
	1.3 Distinguish between matter and substance.		*					
	1.3.1 Define Ions, molecular ions, formula units and free radicals.	*						
	1.3.2 Define atomic number, atomic mass and atomic mass unit.	*						
	1.3.3-5 Differentiate among element, compound and mixture.		*					
1.3.11 Define relative atomic mass based on C-12.	*							
1.3.12 Differentiate empirical and molecular formula.		*						
1.4 Classify the chemical species from the given examples.		*						
		*						

	<p>1.4.1 Distinguish between atoms and ions. Molecule and molecular ions. Ions and free radicals.</p> <p>1.4.2 Molecules &amp; Types of Molecules</p> <p>1.6.1 Relate gram atomic mass, gram molecular mass,</p> <p>1.6.2 What is mole, gram formula mass</p> <p>1.6.3 Describe how Avogadro's number is related to the mole of any substance.</p> <p>Identify the chemical equation in terms of moles.</p> <p>Calculation with balance equation using mole representative particles masses.</p> <p>Distinguish the terms gram atomic mass, gram molecular mass and gram formula mass</p> <p>Change atomic mass, molecular mass and formula into gram mass, gram molecular mass and gram formula mass.</p>		*					
			*					
			*	*				
			*				3	
			*	*				
			*	*				
			*	*				
<p>UNIT2 ATOMIC STRUCTURE</p> <p>Weightage: 14</p>	<p><b>Students will be able to:</b></p> <p><b>2.! Describe the discovery of (atomic particle)</b></p> <p><b>2.1.1 Electron,</b></p> <p><b>21.2 Proton</b></p> <p><b>2.1.3 Neutron.</b></p> <p><b>2.1 Define Atomic Number (Z), Mass Number (A) in term of number of proton and/or neutron how they are related.</b></p> <p><b>2.2.1 Describe the contributions Rutherford made to the development of the atomic theory.</b></p> <p><b>2.2.2 Explain how Bohr's atomic model is different.</b></p> <p><b>2.3.1 Define Modern theories of Atomic Structure ( De Broglie</b></p>		*					
			*					
			*					
			*					
		*	*					



	<p><b>Hypothesis &amp; Schrodinger atomic model)</b></p> <p><b>2.4 Describe the presence of sub shells in a shell. Distinguish between Shells and Sub shells.</b></p> <p><b>2. 4.1What is the Electronic Configuration of the first 18 Elements in the Periodic Table?</b></p> <p><b>2.5 Define and compare isotopes of an Atom.</b></p> <p><b>2.5.1 Discuss the examples of the isotopes of the H, C, Cl and U.</b></p> <p><b>2.5.1 Draw the structure of different isotopes from mass number and atomic number.</b></p> <p><b>2.5.1State the importance and uses of the isotopes in various fields of life.</b></p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>				
<p><b>UNIT -3</b></p> <p><b>Periodic Table&amp; Periodicity Of Properties</b></p> <p><b>Weightage: 08</b></p>	<p>3.1.1 State the periodic law·</p> <p>3.1.1 Distinguish between a period and a group in the periodic table.</p> <p>3.1.2 What is Modern Periodic table?</p> <p>3. 1.3Determine the demarcation of the periodic table into an s-block, p-block, d-block</p> <p>3.1.3 Determine the location of families on the Periodic table What is the periodicity of properties?</p> <p>3.2.1 Recognize the atomic size &amp; atomic radius of different elements.</p> <p>3.2.2 Define Ionization Potential &amp; on which factor it depends?</p> <p>3.2.3 Define electron affinity</p> <p>3.2.4 Explain how the shielding effect influences periodic trends.</p> <p>3.2.5 Describe Electronegativity,</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>				



<b>Unit 5</b>  <b>Physical States of Matter</b>  <b>Weightage: 12</b>	5. Define Diffusion & Effusion  5.1 What are the characteristics Boltzmann Maxwell Kelvin observed on the Gaseous state 5.1 Why density of gases increase on cooling? 5.1 What is the unit of density in gases 5.2 Boyle's establishes a relation between pressure-volume changes in a gas at constant temperature Express the relation 5.2.1 Calculate volume, temperature & pressure numerically 5.2.2 Compare the physical states of matter with reference to intermolecular forces present between them.  5.3.3 Account for temperature volume changes in a gas using Charles's Law.  5.3.4 Summarize the properties of liquids like evaporation, vapor pressure, Freezing and boiling point.  5.4 Describe physical properties of solids 5.5 Differentiate between amorphous and crystalline solids.  5.6 Explain the allotropic forms of solids.  5.5.7 Define the plasma with help of examples. 5.8 Define Bose Einstein Condensate with help of example.	*						
				*	*			
<b>UNIT 6</b> <b>Solution</b>  <b>Weightage:</b>	<b>6.1 Define the following terms: solution, aqueous solution, solute and solvent and give an example of each.</b>	*	*					

16	<p><b>6.2 Explain the difference between saturated, unsaturated and supersaturated solutions.</b></p> <p><b>6.2.4 Prepare to dilute solution numerically</b></p> <p><b>6.3 Classify Types of Solutions</b></p> <p><b>6.4 Concentration Units</b></p> <p><b>6.4.1 Calculate Percentage by mass by Volume</b></p> <p><b>6.4. What is Molarity Calculate the Molarity of a Solution in the problem</b></p> <p><b>6.4 Describe how to prepare a solution of given Molarity.</b></p> <p><b>6.4.1 Convert between the Molarity of a solution and its concentration in g/dm<sup>3</sup>.</b></p> <p><b>6.5 Define solution &amp; factors effect on it.</b></p> <p><b>6.6 Define colloids and suspensions.</b></p> <p><b>6.6.1 Differentiate between solutions, suspension and colloid</b></p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>				
Unit 7	<p><b>7.1 Define oxidation and reduction</b></p> <p><b>Explain oxidation and reduction in terms of loss or gain of electrons.</b></p> <p><b>7.2 Define Electrochemical cell &amp; its Application</b></p>	<p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p>					

<p><b>ELECTRO CHEMISTRY</b></p> <p><b>Weightage: 12</b></p>	<p><b>7.2.1 Define Concepts of Electrolyte &amp; Electrolysis with example</b></p> <p><b>7.2.2 Sketch an electrolytic cell, label the cathode and the anode.</b></p> <p><b>7.2.3 Faraday's law of Electrolysis &amp; it's solve its numerical.</b></p> <p><b>List the possible uses of an electrolytic cell.</b></p> <p><b>Sketch a Daniell cell, labeling the cathode, the anode, and the direction of flow of the electrons.</b></p> <p><b>Distinguish between electrolytic and Galvanic cells.</b></p> <p><b>7.3 Define corrosion.</b></p> <p><b>Describe rusting of iron as an example of corrosion.</b></p> <p><b>Summarize the methods used to prevent corrosion.</b></p> <p><b>7.4 Explain electroplating of metals on steel (using examples of zinc, Tin and chromium plating).</b></p> <p><b>Describe how a battery produces electrical energy</b></p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>					
<p><b>UNIT 8 CHEMICAL REACTIVITY</b></p> <p><b>Weightage: 12</b></p>	<p><b>Classifying the type of elements into metals, non-metals and metalloids.</b></p> <p><b>Draw flow chart diagram of classification of metals, non-metals and metalloids.</b></p> <p><b>Show how cations and anions are related to the terms metals and non-metals.</b></p> <p><b>Identify elements as an alkali metal or an alkaline earth metal.</b></p> <p><b>Analyze why alkali metals are not</b></p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p>					

	<p><b>found in the free state in nature.</b></p> <p><b>Explain the differences in ionization energies of alkali and alkaline earth metals. .</b></p> <p><b>Describe the position of sodium in Periodic Table, its simple properties and uses. .</b></p> <p><b>Describe the position of calcium and magnesium in Periodic Table, their simple properties and uses.</b></p> <p><b>Differentiate between soft and hard metals (Iron and Sodium).</b></p> <p><b>Describe the inertness of noble metal.</b></p> <p><b>Identify the commercial value silver, Gold and Platinum.</b></p> <p><b>Compile some important reactions of halogens.</b></p> <p><b>Name some elements, which are found in uncombined state in nature</b></p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>	<p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>				

**Total Marks: 60**

**MCQs :12**

**CRQs: 8/ 12 (24 Marks)**

**ERQs: 4/6 (24 Marks)**

## DEFINITIONS OF COGNITIVE LEVELS

### **Remember**

Remembering is the act of retrieving knowledge and can be used to produce things like definitions or lists. The student must be able to recall or recognise information and concepts. The teacher must present information about a subject to the student, ask questions that require the student to recall that information and provide written or verbal assessment that can be answered by remembering the information learnt.

### **Question Stems**

- Can you name all the ...?
- Describe what happens when ...?
- How is (are) ...?
- How would you define ...?
- How would you identify ...?
- How would you outline ...?
- How would you recognise...?
- List the ... in order.
- What do you remember about ...?
- What does it mean?
- What happened after?
- What is (are) ...?
- What is the best one?
- What would you choose ...?
- When did ...?
- Where is (are) ...?
- Which one ...?
- Who spoke to ...?
- Who was ...?
- Why did ...?

### **Understand**

The next level in the taxonomic structure is Understanding, which is defined as the construction of meaning and relationships. Here the student must understand the main idea of material heard, viewed, or read and interpret or summarise the ideas in their own words. The teacher must ask questions that the student can answer in their own words by identifying the main idea.

### **Question Stems**

- Can you clarify...?
- Can you illustrate ...?
- Condense this paragraph.
- Contrast ...
- Does everyone think in the way that ... does?
- Elaborate on ...
- Explain why ...
- Give an example
- How can you describe
- How would you clarify the meaning
- How would you compare ...?
- How would you differentiate between ...?
- How would you describe...?
- How would you generalise...?
- How would you identify ...?
- Is it valid that ...?
- Is this the same as ...?
- Outline ...
- Select the best definition
- State in your own words
- This represents ...
- What are they saying?
- What can you infer from ...?
- What can you say about ...?
- What could have happened next?
- What did you observe?

	<ul style="list-style-type: none"> <li>• What does this mean?</li> <li>• What expectations are there?</li> <li>• What information can you infer from...?</li> <li>• What is the main idea of ...?</li> <li>• What restrictions would you add?</li> <li>• What seems likely?</li> <li>• What seems to be ...?</li> <li>• What would happen if ...?</li> <li>• What would happen if ...?</li> <li>• Which are the facts?</li> <li>• Which statements support ...?</li> </ul>
<p><b>Apply</b></p> <p>The third level in Bloom’s taxonomy, Applying, marks a fundamental shift from the pre-Bloom’s learning era because it involves remembering what has been learnt, having a good understanding of the knowledge, and applying it to real-world exercises, challenges or situations. Students must apply an abstract idea in a concrete case to solve a problem or relate it to prior experience. The teacher must provide opportunities for students to use theories and problem-solving techniques in new situations and review and check their work. Assessment questions should be provided that allow students to define and solve problems.</p> <p><b>Question Stems</b></p> <ul style="list-style-type: none"> <li>• Can you group by characteristics such as ...?</li> <li>• Choose the best statements that apply</li> <li>• Clarify why ...</li> <li>• Do you know of another instance where ...?</li> <li>• Draw a story map</li> <li>• Explain why a character acted in the way that he did</li> <li>• From the information given, can you develop a set of instructions about ...?</li> <li>• How could you develop ...?</li> <li>• How would you change ...?</li> <li>• How would you demonstrate...?</li> </ul>	<p><b>Analyse</b></p> <p>Analysing is the cognitive level where students can take the knowledge they have remembered, understood and applied, then delve into that knowledge to make associations, discernments or comparisons. Students should break down a concept or idea into parts and show relationships between these parts. Teachers must give students time to examine concepts and their requisite elements. Students are required to explain why they chose a solution.</p> <p><b>Question Stems</b></p> <ul style="list-style-type: none"> <li>• Can you distinguish between ...?</li> <li>• Can you explain what must have happened when ...?</li> <li>• Determine the point of view, bias, values, or intent underlying the presented material</li> <li>• Discuss the pros and cons of ...</li> <li>• How can you classify ... according to ...?</li> <li>• How can you compare the different parts?</li> <li>• How can you sort the different parts...?</li> <li>• How is ... connected to ...?</li> <li>• How is ... similar to ...?</li> <li>• How would you categorise...?</li> <li>• How would you explain ?</li> <li>• If ... happened, what might the ending have been?</li> </ul>




<ul style="list-style-type: none"> <li>• How would you develop ... to present ?</li> <li>• How would you explain ...?</li> <li>• How would you modify ...?</li> <li>• How would you present...?</li> <li>• How would you solve ... ?</li> <li>• Identify the results of ...</li> <li>• Illustrate the ...</li> <li>• Judge the effects of ... What would result ...?</li> <li>• Predict what would happen if ...</li> <li>• Tell how much change there would be if ...</li> <li>• Tell what would happen if ...</li> <li>• What actions would you take to perform ...?</li> <li>• What do you think could have happened next?</li> <li>• What examples can you find that ?</li> <li>• What other way would you choose to ...?</li> <li>• What questions would you ask of ...?</li> <li>• What was the main idea ...?</li> <li>• What would the result be if ...?</li> <li>• Which factors would you change if ...?</li> <li>• Who do you think...?</li> <li>• Why does this work?</li> <li>• Write a brief outline ...</li> <li>• Write in your own words ...</li> </ul>	<ul style="list-style-type: none"> <li>• State the point of view of ...</li> <li>• What are some of the problems of ...?</li> <li>• What assumptions ...?</li> <li>• What can you infer about...?</li> <li>• What can you point out about ?</li> <li>• What conclusions ...?</li> <li>• What do you see as other possible outcomes?</li> <li>• What does the author assume?</li> <li>• What explanation do you have for ...?</li> <li>• What ideas justify the conclusion?</li> <li>• What ideas validate...?</li> <li>• What is the analysis of ...?</li> <li>• What is the function of ...?</li> <li>• What is the problem with ...?</li> <li>• What motive is there?</li> <li>• What persuasive technique is used?</li> <li>• What statement is relevant?</li> <li>• What was the turning point?</li> <li>• What were some of the motives behind ...?</li> <li>• What's fact? Opinion?</li> <li>• What's the main idea?</li> <li>• What's the relationship between?</li> <li>• Which events could not have happened?</li> <li>• Why did ... changes occur?</li> <li>• Why do you think ?</li> </ul>
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## BLOOMS TAXONOMY WITH EXAMPLES

### Conclusion

If you are a teacher looking for ways to engage your students in learning, this LIST of questions might be interesting for your classroom practice. Bloom's Taxonomy question stems can help elicit higher-order thinking skills and promote critical thinking among learners at different taxonomy levels. These question stems can also encourage students to think about their knowledge through reflection before answering questions.

### ACTION WORDS FOR COGNITIVE LEVELS

<b>Knowledge</b>	<b>Understand</b>	<b>Apply</b>	<b>Analyze</b>	<b>Evaluate</b>	<b>Create</b>
	 <small>UNDERSTAND</small>				
define	explain	solve	analyze	reframe	design
identify	describe	apply	appraise	criticize	compose
describe	interpret	illustrate	judge	evaluate	create
label	paraphrase	modify	support	order	plan
list	summarize	use	compare	compare	combine
name	classify	calculate	decide	classify	formulate
state	compare	change	discriminate	contrast	invent
match	differentiate	choose	recommend	distinguish	hypothesize
recognize	discuss	demonstrate	summarize	infer	substitute
select	distinguish	discover	assess	separate	write
examine	extend	experiment	choose	explain	compile
locate	predict	relate	convince	select	construct
memorize	associate	show	defend	categorize	develop
quote	contrast	sketch	estimate	connect	generalize
recall	convert	complete	grade	differentiate	integrate
reproduce	demonstrate	construct	measure	divide	modify
tabulate	estimate	dramatize	predict	order	organize
tell	express	interpret	rank	prioritize	prepare
Copy	identify	manipulate	score	survey	produce
discover	indicate	paint	select	calculate	rearrange

duplicate	infer	prepare	test	conclude	rewrite
enumerate	relate	teach	argue	correlate	adapt
listen	restate	act	conclude	deduce	anticipate
observe	select	collect	consider	devise	arrange
omit	translate	compute	critique	diagram	assemble
read	ask	explain	debate	dissect	choose
recite	cite	list	distinguish	estimate	collaborate
record	discover	operate	editorialize	evaluate	facilitate
repeat	generalize	practice	justify	experiment	imagine
retell	group	simulate	persuade	focus	intervene
visualize	illustrate	transfer	rate	illustrate	make
	judge	write	weigh	organize	manage
	observe			outline	originate
	order			plan	propose
	report			question	simulate
	represent			test	solve
	research				support
	review				test
	rewrite				validate
	show				

**SSC PART I EXAMINATION  
MARKS BREAKUP GRID FOR EXAMINATION 2023**

**SCIENCE GROUP:**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	75	-	75
ISLAMIAT/ETHICS	75	-	75
PHYSICS	60	15	75
CHEMISTRY	60	15	75
BIOLOGY	60	15	75
MATHEMATICS	75	-	75
<b>TOTAL</b>	<b>505</b>	<b>45</b>	<b>550</b>

**COMPUTER SCIENCE GROUP:**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL/SINDHI NORMAL	75	-	75
ISLAMIAT/ETHICS	75	-	75
PHYSICS	60	15	75
CHEMISTRY	60	15	75
COMPUTER STUDIES	60	15	75
MATHEMATICS	75	-	75
<b>TOTAL</b>	<b>505</b>	<b>45</b>	<b>550</b>

**GENERAL GROUP:**

<b>SUBJECT</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>TOTAL</b>
ENGLISH	100	-	100
URDU NORMAL / SINDHI NORMAL	75	-	75
ISLAMIAT/ETHICS	75	-	75
GENERAL SCIENCE	75	-	75
GENERAL MATH	75	-	75
EDUCATION	75	-	75
ECONOMICS	75	-	75
CIVICS	75	-	75
ISLAMIC STUDIES	75	-	75
<b>TOTAL</b>	<b>550</b>	<b>-</b>	<b>550</b>



Class:IX

**MODEL PAPER FOR 2024**

Time Allowed: 20minutes

SUBJECT: CHEMISTRY

Q1:

(SECTION "A")

Marks: 12

**Note:** Attempt all questions from section 'A'. Each question carries ONE mark.

(i) Oxygen was discovered by:

- A. J. Priestly                      B. J. Black                      C. Cavendish                      D. Coulomb

(ii) The empirical formula of Hydrogen per oxide is:

- A. H<sub>2</sub>O                      B. H<sub>2</sub>O<sub>2</sub>                      C. HO                      D. CO<sub>2</sub>

(iii) He discovered electron:

- A. Rutherford                      B. J. J. Thomson                      C. Chadwick                      D. Boltzman

(iv) All transition elements are:

- A. Metals                      B. Non metals                      C. Metalloids                      D. Both B&C

(v) An example of ionic compound is:

- A. NaCl                      B. CH<sub>4</sub>                      C. C<sub>6</sub>H<sub>6</sub>                      D. C<sub>2</sub>HO

(vi) Atom which loses two electrons from its outer shell to form an ion is called:

- A. Oxygen                      B. Potassium                      C. Magnesium                      D. Chlorine

(vii) The most electronegative element is:

- A. Chlorine                      B. Fluorine                      C. Oxygen                      D. Iodine

(viii) Hydrogen bond is a type of:

- A. Metallic bond                      B. Intermolecular force                      C. Chemical bond                      D. Intramolecular Force

(ix) How many subshells in a L-Shells:

- A. Five                      B. Two                      C. Three                      D. four

(x) The mass of proton is 1836 times more than:

- A. Electron                      B. Neutron                      C. Photon                      D. Neucleon

(xi) Example of sodium heterogeneous mixture is:

- A. Sugar and water                      B. Sand and water                      C. Salt and water                      D. Sand & Salt

(xii) Which gas can turn lime water milky?

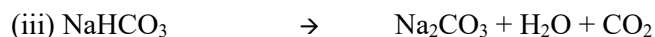
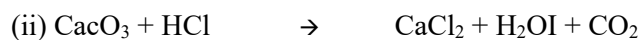
- A. CO<sub>2</sub>                      B. O<sub>2</sub>                      C. NO<sub>2</sub>                      D. CH<sub>4</sub>#

**END OF SECTION A**

**Class: IX****MODEL PAPER FOR 2024****Total Marks 48****Time: 2 hours 40 minutes****SECTION "B" (SHORT ANSWER QUESTIONS)****24 Marks****SUBJECT: CHEMISTRY**

Note: Answer any **EIGHT** questions from section 'B'. Each question carries **THREE** marks. (24)

Q2. Balance the following chemical equations:



Q3. Write the name and contribution of any two Muslim and Non-Muslim scientist in the field of chemistry?

Q4. State Faraday's first and second law of electrolysis.

Q5. Define mole. Calculate the no. of moles in 10gm of water (H<sub>2</sub>O).

Q6. Write any three characteristics of ionic compounds OR write properties of cathode rays.

Q7. What is an alloy? Write down the composition and one use of Brass & Bronze.

Q8. Define the following:

(a) Group (b) Electronegativity (c) Oxidation

Q9. The 800 Cm<sup>3</sup> of a gas is enclosed in a container under a pressure of 750mm. if the volume is reduced to 250 Cm<sup>3</sup>, what will be the pressure?

Q10. What are transition element? Write some properties of transition elements.

Q11. Define molarity. What is the molarity of the solution prepared by dissolving 1.25 gm of HCl gas into enough water to make 300 Cm<sup>3</sup> of solution?

Q12. Write down the chemical and empirical formula of the following compounds:

(a) Benzene (b) Glucose (c) Acetic Acid

Q13. Write down three characteristics of ionic compounds.

**SECTION "C" DETAILED ANSWER QUESTIONS****24 Marks**

Note: Answer any **FOUR** questions from section 'C'. Each question carries **SIX** marks.

Q14. Discuss in detail the long form of periodic table.

Q15. Explain how Bohr's atomic model is different from Rutherford atomic model and conclusion of J.J. Thomson.

Q16. Describe discharge tube experiment with labelled diagram and what were the justifications.

Q17. Describe the formation of ionic bond in NaCl. OR What is co-ordinate covalent bond? Explain with two examples.

OR

Define solution. Explain saturated, unsaturated and super saturated solutions.

Q18. Describe dry cell with a diagram OR what is electroplating? How can steel objects be electroplated with Tin OR Zinc?

Q19. What is evaporation? Discuss the factors that affect the evaporation process

OR

what is rusting? How can it be prevented?

**END OF PAPER**