

# Test Jot Series

Test Jot Test Series

|               |                                                |                                                                                   |                |                 |
|---------------|------------------------------------------------|-----------------------------------------------------------------------------------|----------------|-----------------|
| Student Name: |                                                |  | Class:         | 9th             |
| Paper Type:   | Chemistry SNC<br>Complete Book Chapter<br>Wise |                                                                                   | Subject:       | Chemistry (SNC) |
| Paper Time:   | 40                                             |                                                                                   | Maximum Marks: | 30              |

Q1. Choose the correct option. \_\_\_\_\_ (6X1=6)

**1. The man-made polymer is:**

|            |                 |             |               |
|------------|-----------------|-------------|---------------|
| (A) Starch | (B) Polystyrene | (C) Protein | (D) Cellulose |
|------------|-----------------|-------------|---------------|

**2. The Branch of chemistry that helps to treat diseases and synthesize new medicines:**

|                        |                       |                         |                         |
|------------------------|-----------------------|-------------------------|-------------------------|
| (A) Physical Chemistry | (B) Polymer Chemistry | (C) Medicinal Chemistry | (D) Inorganic Chemistry |
|------------------------|-----------------------|-------------------------|-------------------------|

**3. Which branch of chemistry involves the use of modern and sophisticated instruments to analyze the matter:**

|                          |                       |                       |                   |
|--------------------------|-----------------------|-----------------------|-------------------|
| (A) Analytical Chemistry | (B) Organic Chemistry | (C) Nuclear Chemistry | (D) Geo Chemistry |
|--------------------------|-----------------------|-----------------------|-------------------|

**4. Example of Natural Polymer:**

|              |               |                   |                  |
|--------------|---------------|-------------------|------------------|
| (A) Proteins | (B) Cellulose | (C) Nucleic Acids | (D) All of these |
|--------------|---------------|-------------------|------------------|

**5. This world is made up of matter and:**

|            |           |          |         |
|------------|-----------|----------|---------|
| (A) Energy | (B) Water | (C) Soil | (D) Air |
|------------|-----------|----------|---------|

**6. Which substance can be separated by chemical means?**

|              |             |             |                  |
|--------------|-------------|-------------|------------------|
| (A) Compound | (B) Element | (C) Mixture | (D) All of these |
|--------------|-------------|-------------|------------------|

Q2. Write down short answers of following questions. \_\_\_\_\_ (7X2=14)

|                                                                                   |                                               |
|-----------------------------------------------------------------------------------|-----------------------------------------------|
| [i] Difference between environmental and analytical chemistry?                    | [ii] What is meant by nuclear process?        |
|                                                                                   | [iii] Why are supercritical fluids important? |
| [iv] How does a supercritical state look like?<br>(Constructed Response Question) | [v] How can matter change its state?          |
|                                                                                   | [vi] What is plasma? Write its uses.          |
| [vii] Why solid have a definite shape and volume?                                 |                                               |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                               |
|---------------------------------------------------------------------------------------------------------------|
| 1. Define chemistry. Write note on four branches of chemistry.                                                |
| 2. Explain any two intermediate states of matter.                                                             |
| 3. Define solubility of a solute. How does the solubility of solutes change with the increase in temperature? |

---

---

## Chapter Number 2

Q1. Choose the correct option.

(6X1=6)

**1. Protons were discovered by:**

|                 |               |                |          |
|-----------------|---------------|----------------|----------|
| (A) J-J thomson | (B) Goldstein | (C) Rutherford | (D) Bohr |
|-----------------|---------------|----------------|----------|

**2. What is the mass of neutron:**

|                                       |                                      |                                       |                   |
|---------------------------------------|--------------------------------------|---------------------------------------|-------------------|
| (A) $1.675 \times 10^{-27} \text{kg}$ | (B) $1.67 \times 10^{-27} \text{kg}$ | (C) $9.109 \times 10^{-31} \text{kg}$ | (D) None of these |
|---------------------------------------|--------------------------------------|---------------------------------------|-------------------|

**3. Atomic number is represented by:**

|       |       |       |       |
|-------|-------|-------|-------|
| (A) A | (B) Z | (C) N | (D) B |
|-------|-------|-------|-------|

**4. Isotopes of hydrogen:**

|         |           |          |          |
|---------|-----------|----------|----------|
| (A) Two | (B) Three | (C) Four | (D) Five |
|---------|-----------|----------|----------|

**5. Which metal/element have below body temperature:**

|             |             |             |            |
|-------------|-------------|-------------|------------|
| (A) Gallium | (B) Thorium | (C) Rhodium | (D) Radium |
|-------------|-------------|-------------|------------|

**6. Scale of relative atomic mass was adopted in:**

|          |          |          |          |
|----------|----------|----------|----------|
| (A) 1961 | (B) 1962 | (C) 1963 | (D) 1960 |
|----------|----------|----------|----------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                    |                                                                       |
|----------------------------------------------------|-----------------------------------------------------------------------|
| [i] What is the structure of an atom?              | [ii] Who first gave the idea of atom?                                 |
| [iii] How many times cesium bigger then helium?    | [iv] Differentiate between shell and sub shell with examples of each. |
| [v] Who discovered an electron and a neutron?      | [vi] How almost all the mass of atom is concentrated in the nucleus?  |
| [vii] Why are elements different from one another? |                                                                       |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                   |
|-------------------------------------------------------------------|
| 1. Explain discovery of proton with the help of diagram?          |
| 2. How Niel's Bohr's proposed a model for the hydrogen atom?      |
| 3. How many isotopes of carbon, explain with the help of diagram? |

---

---

-----  
Q1. Choose the correct option.

(6X1=6)

**1. Atoms want to attain stability go get configuration:**

|              |                  |                   |               |
|--------------|------------------|-------------------|---------------|
| (A) Halogens | (B) Noble gasses | (C) Alkali metals | (D) Non metal |
|--------------|------------------|-------------------|---------------|

**2. Group of noble gasses in periodic table?**

|          |          |          |          |
|----------|----------|----------|----------|
| (A) G-17 | (B) G-16 | (C) G-18 | (D) G-12 |
|----------|----------|----------|----------|

**3. Covalent bond is formed by ..... of electron.**

|              |             |             |                  |
|--------------|-------------|-------------|------------------|
| (A) Donating | (B) Gaining | (C) Sharing | (D) All of these |
|--------------|-------------|-------------|------------------|

**4. The electrons are ..... in metallic bond?**

|                             |                    |                             |                          |
|-----------------------------|--------------------|-----------------------------|--------------------------|
| (A) Localized between atoms | (B) Shared equally | (C) Delocalized among atoms | (D) Transfer from one to |
|-----------------------------|--------------------|-----------------------------|--------------------------|

**5. What is the electropositive character of a metal related to?**

|                                   |                              |                                   |                                        |
|-----------------------------------|------------------------------|-----------------------------------|----------------------------------------|
| (A) Its ability to lose electrons | (B) Its ability to form ions | (C) Its ability to gain electrons | (D) Its ability to conduct electricity |
|-----------------------------------|------------------------------|-----------------------------------|----------------------------------------|

**6. Which of the following non-metal has a lower electronegativity value than oxygen?**

|              |              |              |             |
|--------------|--------------|--------------|-------------|
| (A) Nitrogen | (B) Fluorine | (C) Chlorine | (D) Sulfure |
|--------------|--------------|--------------|-------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                |                                                                                                  |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| [i] An how many ways an atom can accommodate eight electrons in valence shell. | [ii] What types of elements form ionic bonds?                                                    |
|                                                                                | [iii] How will you define covalent bond?                                                         |
| [iv] How will draw a formation of covalent bond in method?                     | [v] Draw picture diagram of coordinate covalent bond between $\text{BF}_3$ and $\text{AlCl}_3$ ? |
| [vi] Which property of metals makes them malleable and ductile?                | [vii] How do metals conduct heat? (Constructed Response Question)                                |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                  |
|----------------------------------------------------------------------------------|
| 1. Why and how atoms forms chemical bond?                                        |
| 2. Explain the properties of metals keeping in view the nature of metallic bond. |
| 3. What is metallic bond? Explain diagram?                                       |

## Chapter Number 4

Q1. Choose the correct option.

(6X1=6)

**1. Methane gas its represented by:**

|                            |                           |                 |                           |
|----------------------------|---------------------------|-----------------|---------------------------|
| <b>(A)</b> CH <sub>4</sub> | <b>(B)</b> N <sub>2</sub> | <b>(C)</b> NaCl | <b>(D)</b> O <sub>3</sub> |
|----------------------------|---------------------------|-----------------|---------------------------|

**2. How many atomic mass units (amu) are there in one gram?**

|                  |                                 |                                     |                                         |
|------------------|---------------------------------|-------------------------------------|-----------------------------------------|
| <b>(A)</b> 1 amu | <b>(B)</b> 10 <sup>23</sup> amu | <b>(C)</b> 6.022 × 10 <sup>23</sup> | <b>(D)</b> 6.022 × 10 <sup>22</sup> amu |
|------------------|---------------------------------|-------------------------------------|-----------------------------------------|

**3. A necklace has 6g of diamonds in it. What are the number of carbon atoms in it?**

|                                    |                                     |                                     |                                    |
|------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| <b>(A)</b> 6.02 × 10 <sup>23</sup> | <b>(B)</b> 12.04 × 10 <sup>23</sup> | <b>(C)</b> 1.003 × 10 <sup>23</sup> | <b>(D)</b> 3.01 × 10 <sup>23</sup> |
|------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|

**4. Who is credited with the discovery of Avogadro's number?**

|                            |                            |                              |                         |
|----------------------------|----------------------------|------------------------------|-------------------------|
| <b>(A)</b> Amedeo Avogadro | <b>(B)</b> Jacques Charles | <b>(C)</b> Joseph Gay lussac | <b>(D)</b> Robert Boyle |
|----------------------------|----------------------------|------------------------------|-------------------------|

**5. Molar mass of CO<sub>2</sub> is:**

|                    |                |                   |                         |
|--------------------|----------------|-------------------|-------------------------|
| <b>(A)</b> 44 gram | <b>(B)</b> 16g | <b>(C)</b> 50gram | <b>(D)</b> All of these |
|--------------------|----------------|-------------------|-------------------------|

**6. What type of chemical reaction involves the breakdown of a single substance?**

|                      |                        |                          |                           |
|----------------------|------------------------|--------------------------|---------------------------|
| <b>(A)</b> Synthesis | <b>(B)</b> Replacement | <b>(C)</b> Decomposition | <b>(D)</b> Neutralization |
|----------------------|------------------------|--------------------------|---------------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                                       |                                                                              |
|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>[i]</b> How to write a formula of binary ionic compounds?                                          | <b>[ii]</b> What is the formula of magnesium nitride?                        |
|                                                                                                       | <b>[iii]</b> Write down the chemical formula of barium nitride.              |
| <b>[iv]</b> Write a name of types of a chemical formula?                                              | <b>[v]</b> What is the relationship between molecular and empirical formula? |
| <b>[vi]</b> Find molecular formula of a compound with empirical CH <sub>2</sub> O and molar mass 180. | <b>[vii]</b> Define Mole?                                                    |

Q3. Write detailed answers of the following questions.(Answer any **2**)

(2X5=10)

|                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.</b> What is stoichiometry? What are conditions for stoichiometry?                                                                                                                                 |
| <b>2.</b> When 8.657g of a compound were converted into elements, it gave. 5.217g of carbon 0.962g of hydrogen and 2.478g of oxygen. Calculate the percentage of each element present in this compound. |
| <b>3.</b> Determine the molar masses of compound Glucose and sulphuric acid in gmol <sup>-1</sup> .                                                                                                     |

Q1. Choose the correct option.

(6X1=6)

**1. When new bonds are formed, the energy is:**

|             |             |                 |                   |
|-------------|-------------|-----------------|-------------------|
| (A) Consume | (B) Release | (C) Remain same | (D) None of these |
|-------------|-------------|-----------------|-------------------|

**2. Who use the word energy for the 1st time:**

|                  |          |                |                   |
|------------------|----------|----------------|-------------------|
| (A) Thomas young | (B) Bohr | (C) Rutherford | (D) None of these |
|------------------|----------|----------------|-------------------|

**3. The enthalpy of reaction  $H_2 + I_2 \rightarrow 2HI$** 

|              |          |              |             |
|--------------|----------|--------------|-------------|
| (A) -571.6kJ | (B) 11kJ | (C) -393.5kJ | (D) +53.8kJ |
|--------------|----------|--------------|-------------|

**4. Which of the following reaction us an example of an exothermic reaction:**

|                    |                 |                               |                              |
|--------------------|-----------------|-------------------------------|------------------------------|
| (A) Photosynthesis | (B) Respiration | (C) Combustion for neural gas | (D) Decomposition of ammonia |
|--------------------|-----------------|-------------------------------|------------------------------|

**5. What is the first step in a chemical reaction?**

|                   |                  |                                     |                           |
|-------------------|------------------|-------------------------------------|---------------------------|
| (A) Bond breaking | (B) Bond forming | (C) Collision of reactant molecules | (D) Formation of products |
|-------------------|------------------|-------------------------------------|---------------------------|

**6. Adenosine triphosphate means is:**

|         |         |         |         |
|---------|---------|---------|---------|
| (A) ATP | (B) PTA | (C) ADP | (D) AMP |
|---------|---------|---------|---------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                        |                                                                 |
|----------------------------------------|-----------------------------------------------------------------|
| [i] Define Enthalpy?                   | [ii] Why total enthalpy of system can not be measured directly? |
| [iii] Define endothermic reaction?     | [iv] What are biological fuels?                                 |
| [v] Define combustion?                 | [vi] Define hydrogen of oil?                                    |
| [vii] How lipids are source of energy? |                                                                 |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.</b> Describe the concept of a system and its surroundings in chemistry provide example to illustrate the difference between the two.                                                                                                                                                                                         |
| <b>2.</b> Find out the enthalpy change ( $\Delta H$ ) of the following reaction using the given data:<br>$N_{2(g)} + O_{2(g)} \rightarrow 2NO_{(g)}$ , Bond dissociation energy of $N_2=958.38\text{kJ mol}^{-1}$ , Bond dissociation energy of $O_2=498\text{kJ mol}^{-1}$ , Bond formation energy of $NO=-626\text{kJ mol}^{-1}$ |
| <b>3.</b> Write a note on glycolysis?                                                                                                                                                                                                                                                                                              |

Q1. Choose the correct option.

(6X1=6)

**1. In a chemical reaction the substance that combine are called?**

|               |              |            |               |
|---------------|--------------|------------|---------------|
| (A) Reactants | (B) Products | (C) Masses | (D) Materials |
|---------------|--------------|------------|---------------|

**2. Such reaction which continue in both direction are called?**

|                  |                |                  |             |
|------------------|----------------|------------------|-------------|
| (A) Irreversible | (B) Reversible | (C) Non-reactive | (D) Dynamic |
|------------------|----------------|------------------|-------------|

**3. The reaction in which the products do not recombine to form reactants are called?**

|                            |                          |                             |                       |
|----------------------------|--------------------------|-----------------------------|-----------------------|
| (A) Irreversible reactions | (B) Reversible reactions | (C) Decomposition reactions | (D) Addition reaction |
|----------------------------|--------------------------|-----------------------------|-----------------------|

**4. Equilibrium State is achievable in**

|                   |                 |                  |                   |
|-------------------|-----------------|------------------|-------------------|
| (A) Closed System | (B) Open System | (C) Both of Them | (D) None of These |
|-------------------|-----------------|------------------|-------------------|

**5. What is the relationship between the equilibrium constant (k) and the concentrations of reactants and products?**

|                                                    |                                                    |                                                    |                                                    |
|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| (A) $k = \frac{\text{reactions}}{\text{products}}$ | (B) $k = \frac{\text{products}}{\text{reactions}}$ | (C) $k = \frac{\text{reactions}}{\text{products}}$ | (D) $k = \frac{\text{products}}{\text{reactants}}$ |
|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|

**6. Nitrogen and hydrogen were reacted together to make ammonia?  $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$   $K_c = 2.86 \text{ mol}^{-2} \text{ dm}^6$** 

|                        |                                                   |                                        |                       |
|------------------------|---------------------------------------------------|----------------------------------------|-----------------------|
| (A) $\text{NH}_3$ only | (B) $\text{N}_2$ , $\text{H}_2$ and $\text{NH}_3$ | (C) $\text{N}_2$ and $\text{H}_2$ only | (D) $\text{H}_2$ only |
|------------------------|---------------------------------------------------|----------------------------------------|-----------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                          |                                                                       |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| [i] Why are combustion reactions generally irreversible? (Constructed Response Question) | [ii] Can you make an irreversible reaction reversible and vice versa? |
| [iii] Define irreversible reaction?                                                      | [iv] What are reversible reaction?                                    |
| [v] Difference between reversible and irreversible reaction?                             | [vi] Define chemical equilibrium state. Give two states.              |
| [vii] How dynamic equilibrium is established?                                            |                                                                       |

Q3. Write detailed answers of the following questions. (Answer any 2) (2X5=10)

|                                                                             |
|-----------------------------------------------------------------------------|
| 1. How can a reversible reaction be forced to go to completion?             |
| 2. Explain five conditions that can disturb the chemical equilibrium state? |
| 3. Explain a synthesis of ammonia on the industrial scale?                  |

Q1. Choose the correct option.

(6X1=6)

**1. Which acid is used the preparation of soap?**

|                   |                 |                  |                 |
|-------------------|-----------------|------------------|-----------------|
| (A) Tartaric acid | (B) Citric acid | (C) Stearic acid | (D) Oxalic acid |
|-------------------|-----------------|------------------|-----------------|

**2. Which of the following contains oxalic acid?**

|            |            |              |               |
|------------|------------|--------------|---------------|
| (A) Tomato | (B) Orange | (C) Tamarind | (D) Sour milk |
|------------|------------|--------------|---------------|

**3. Formula of oxalic acid is:**

|                                      |                             |                             |                                      |
|--------------------------------------|-----------------------------|-----------------------------|--------------------------------------|
| (A) $\text{H}_2\text{C}_2\text{O}_4$ | (B) $\text{H}_2\text{CO}_4$ | (C) $\text{CH}_2\text{O}_4$ | (D) $\text{C}_2\text{H}_2\text{O}_2$ |
|--------------------------------------|-----------------------------|-----------------------------|--------------------------------------|

**4. What is the conjugate acid of  $\text{NH}_3$ ?**

|                     |                     |                            |                           |
|---------------------|---------------------|----------------------------|---------------------------|
| (A) $\text{NH}_4^+$ | (B) $\text{NH}_2^-$ | (C) $\text{N}_3\text{H}^+$ | (D) $\text{NH}_3$ it self |
|---------------------|---------------------|----------------------------|---------------------------|

**5. What is the conjugate base of  $\text{HCl}$ ?**

|                   |                             |                         |                   |
|-------------------|-----------------------------|-------------------------|-------------------|
| (A) $\text{Cl}^-$ | (B) $\text{H}_2\text{Cl}^+$ | (C) $\text{HC}$ it self | (D) $\text{Cl}_2$ |
|-------------------|-----------------------------|-------------------------|-------------------|

**6. Which is the example of weak base?**

|                      |                         |                       |             |
|----------------------|-------------------------|-----------------------|-------------|
| (A) Sodium Hydroxide | (B) Potassium hydroxide | (C) Calcium hydroxide | (D) Ammonia |
|----------------------|-------------------------|-----------------------|-------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                                  |                                                      |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------|
| [i] Give natural source of formic acids and oxalic acid?                                         | [ii] Define neutralization reaction?                 |
|                                                                                                  | [iii] What is Bronsted Lowry Base?                   |
| [iv] Is $\text{NaHCO}_3$ a base or an acid? Justify your answer. (Constructed Response Question) | [v] What is direct displacement method displacement. |
| [vi] Write a reaction between base and Ammonium chloride?                                        | [vii] Define acid rain its pH?                       |
|                                                                                                  |                                                      |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Write down the limitations of Arrhenius concept?                                                                                                  |
| 2. Briefly explain the concept of Bronsted-Lowry concept?                                                                                            |
| 3. How does sulphuric acid react with the following compounds?<br>$\text{NH}_4\text{Cl}$ , $\text{NH}_4\text{NO}_3$ , $\text{MgO}$ , $\text{MgCO}_3$ |

Q1. Choose the correct option.

(6X1=6)

**1. Founder of the periodic table was:**

|            |           |          |               |
|------------|-----------|----------|---------------|
| (A) Mosley | (B) Henry | (C) Bohr | (D) Medleeves |
|------------|-----------|----------|---------------|

**2. Which is very long period of table?**

|         |             |             |             |
|---------|-------------|-------------|-------------|
| (A) 1-2 | (B) 2nd-3rd | (C) 4th-5th | (D) 6th-7th |
|---------|-------------|-------------|-------------|

**3. Atomic number of lanthanum is:**

|        |        |        |        |
|--------|--------|--------|--------|
| (A) 89 | (B) 59 | (C) 57 | (D) 60 |
|--------|--------|--------|--------|

**4. Alkali metal react with halogens to give:**

|            |              |             |             |
|------------|--------------|-------------|-------------|
| (A) Caribe | (B) Nitrides | (C) Halides | (D) Hydride |
|------------|--------------|-------------|-------------|

**5. Which group tends to lose electrons:**

|         |          |           |          |
|---------|----------|-----------|----------|
| (A) G-I | (B) G-II | (C) G-III | (D) G-IV |
|---------|----------|-----------|----------|

**6. Lose electrons forms:**

|           |            |             |                   |
|-----------|------------|-------------|-------------------|
| (A) Atoms | (B) Anions | (C) Cations | (D) None of these |
|-----------|------------|-------------|-------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                    |                                                                                                              |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>[i]</b> What is the significance of the word periodic?                          | <b>[ii]</b> Define transition elements?                                                                      |
| <b>[iii]</b> Define normal or representative elements?                             | <b>[iv]</b> Why does the size of a period increase as we move down the periodic table?                       |
| <b>[v]</b> What is electronegativity. Which element has highest electronegativity? | <b>[vi]</b> In a group, the elements have the same number of electrons in the outermost shell. Why is it so? |
| <b>[vii]</b> Why does reactivity of metals increase down the groups?               |                                                                                                              |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                   |
|-----------------------------------------------------------------------------------|
| <b>1.</b> Define periodic table? Write a historical background of periodic table? |
| <b>2.</b> Explain all the blocks of the period table?                             |
| <b>3.</b> Compare the chemical properties of elements in group 2?                 |



Q1. Choose the correct option.

(6X1=6)

**1. Which group elements are the most reactive elements?**

|                                   |                        |                         |                        |
|-----------------------------------|------------------------|-------------------------|------------------------|
| <b>(A)</b> Transition metal group | <b>(B)</b> First group | <b>(C)</b> Second group | <b>(D)</b> Third group |
|-----------------------------------|------------------------|-------------------------|------------------------|

**2. Which property is correct for group 1 elements?**

|                                   |                         |                                        |                               |
|-----------------------------------|-------------------------|----------------------------------------|-------------------------------|
| <b>(A)</b> Low catalytic activity | <b>(B)</b> High density | <b>(C)</b> Low electrical conductivity | <b>(D)</b> High melting point |
|-----------------------------------|-------------------------|----------------------------------------|-------------------------------|

**3. Which of the following is less malleable?**

|                   |                 |                 |                   |
|-------------------|-----------------|-----------------|-------------------|
| <b>(A)</b> Sodium | <b>(B)</b> Iron | <b>(C)</b> Gold | <b>(D)</b> Silver |
|-------------------|-----------------|-----------------|-------------------|

**4. Metals possess?**

|                       |                          |                                |                          |
|-----------------------|--------------------------|--------------------------------|--------------------------|
| <b>(A)</b> Ionic bond | <b>(B)</b> Covalent bond | <b>(C)</b> Coordinate covalent | <b>(D)</b> Metallic bond |
|-----------------------|--------------------------|--------------------------------|--------------------------|

**5. non-metals form?**

|                         |                         |                         |                          |
|-------------------------|-------------------------|-------------------------|--------------------------|
| <b>(A)</b> Positive ion | <b>(B)</b> Negative ion | <b>(C)</b> Neutral atom | <b>(D)</b> None of these |
|-------------------------|-------------------------|-------------------------|--------------------------|

**6. non-metals tend to have?**

|                               |                              |                                     |                                    |
|-------------------------------|------------------------------|-------------------------------------|------------------------------------|
| <b>(A)</b> High atomic masses | <b>(B)</b> Low atomic masses | <b>(C)</b> High ionization energies | <b>(D)</b> Low ionization energies |
|-------------------------------|------------------------------|-------------------------------------|------------------------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                    |                                                                                                                  |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| <b>[i]</b> How does Alkali-Metals become soft?                     | <b>[ii]</b> How does Alkali-Metals react with chlorine.                                                          |
| <b>[iii]</b> Predict the reactivity of potassium towards halogens. | <b>[iv]</b> Why hydrogen bromide is thermally unstable as compared to hydrogen chloride? (Descriptive Questions) |
| <b>[v]</b> Why catalytic converter are used in devices?            | <b>[vi]</b> Difference between malleability and ductility?                                                       |
| <b>[vii]</b> Why metals have high melting and boiling points?      |                                                                                                                  |

Q3. Write detailed answers of the following questions.(Answer any **2**) (2X5=10)

|                                                                                    |
|------------------------------------------------------------------------------------|
| <b>1.</b> Compare and contrast the reactivity of lithium, sodium and potassium?    |
| <b>2.</b> Compare the properties of metals and non-metals. (Descriptive Questions) |
| <b>3.</b> Write down five physical properties of metals?                           |

Q1. Choose the correct option.

(6X1=6)

**1. The branch deals with the study of environment and their effects is called:**

|                  |                             |                        |                       |
|------------------|-----------------------------|------------------------|-----------------------|
| (A) Biochemistry | (B) Environmental chemistry | (C) Physical chemistry | (D) Organic chemistry |
|------------------|-----------------------------|------------------------|-----------------------|

**2. Concentration of which gas in the atmosphere is decreased by photosynthesis in plants?**

|            |              |                    |                   |
|------------|--------------|--------------------|-------------------|
| (A) Oxygen | (B) Nitrogen | (C) Carbon dioxide | (D) Water vapours |
|------------|--------------|--------------------|-------------------|

**3. Oxides of ..... are involved in the formation of acid rain:**

|            |            |              |                   |
|------------|------------|--------------|-------------------|
| (A) Oxygen | (B) Carbon | (C) Hydrogen | (D) None of these |
|------------|------------|--------------|-------------------|

**4. Which acid is the reason of acid rain:**

|               |         |                |             |
|---------------|---------|----------------|-------------|
| (A) $H_2SO_4$ | (B) HCl | (C) $CH_3COOH$ | (D) $HCOOH$ |
|---------------|---------|----------------|-------------|

**5. Which is natural radioactive gas:**

|            |          |           |           |
|------------|----------|-----------|-----------|
| (A) Helium | (B) Neon | (C) Argon | (D) Radon |
|------------|----------|-----------|-----------|

**6. AQI that is good is quality:**

|              |              |              |                   |
|--------------|--------------|--------------|-------------------|
| (A) Under 50 | (B) Above 50 | (C) Equal 50 | (D) None of these |
|--------------|--------------|--------------|-------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                        |                                                      |
|--------------------------------------------------------|------------------------------------------------------|
| [i] Which gas is released when carbonated drinks open? | [ii] Define Environmental chemistry?                 |
|                                                        | [iii] Define Acid rain? How its is formed?           |
| [iv] What is acid rain? Write its Ph?                  | [v] What do you know about Robert angus smith?       |
| [vi] What are the causes of acid?                      | [vii] What are the functions of catalytic converter? |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Define air pollutants? Explain the causes and effects of air pollutants?                                                                                                                                      |
| 2. Write down the reactions that take place in automobiles engines?                                                                                                                                              |
| 3. Major Pakistan cities experience a very high AQI in water which renders them the most polluted cities in the world. Point out some of the major causes of high AQI in these cities. (Investigative Questions) |

Q1. Choose the correct option.

(6X1=6)

**1. Which other atom is almost always present along with carbon atom in all organic compounds?**

|            |              |              |             |
|------------|--------------|--------------|-------------|
| (A) Oxygen | (B) Nitrogen | (C) Hydrogen | (D) Halogen |
|------------|--------------|--------------|-------------|

**2. Which hydrocarbon is responsible for explosions in coal mines?**

|            |             |             |            |
|------------|-------------|-------------|------------|
| (A) Butane | (B) Pentane | (C) Methane | (D) Ethene |
|------------|-------------|-------------|------------|

**3. Which of the following is considered as parent organic compound?**

|             |             |             |               |
|-------------|-------------|-------------|---------------|
| (A) Alkanes | (B) Alkenes | (C) Alkynes | (D) Aromatics |
|-------------|-------------|-------------|---------------|

**4. What is the name of the reaction in which a hydrocarbon reacts with oxygen to produce heat and light?**

|                |               |               |                |
|----------------|---------------|---------------|----------------|
| (A) Combustion | (B) Oxidation | (C) Reduction | (D) Hydrolysis |
|----------------|---------------|---------------|----------------|

**5. Which is the simplest alkane:**

|                   |                            |                            |                            |
|-------------------|----------------------------|----------------------------|----------------------------|
| (A) $\text{CH}_4$ | (B) $\text{C}_3\text{H}_8$ | (C) $\text{C}_2\text{H}_2$ | (D) $\text{C}_2\text{H}_4$ |
|-------------------|----------------------------|----------------------------|----------------------------|

**6. No of moles of oxygen required to completely burn ethane is:**

|       |       |       |       |
|-------|-------|-------|-------|
| (A) 4 | (B) 5 | (C) 6 | (D) 7 |
|-------|-------|-------|-------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                               |                                                 |
|---------------------------------------------------------------|-------------------------------------------------|
| [i] Difference between saturated and unsaturated hydrocarbon? | [ii] What is abbreviation of CNG and LPG?       |
|                                                               | [iii] What is the general formula of alkanes?   |
| [iv] Write down the structural formula of propane?            | [v] Write down the dot cross formula of butane? |
|                                                               | [vi] What is reduction of alkyl halides?        |
| [vii] What is combustion?                                     |                                                 |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                               |
|-----------------------------------------------------------------------------------------------|
| 1. Write down five uses of hydrocarbons?                                                      |
| 2. Write a note on cracking of higher hydrocarbons ?                                          |
| 3. Write the structural formulas of the products that are formed by the halogenation process? |

Q1. Choose the correct option.

(6X1=6)

**1. Which of the following pairs of quantities may be measured in the same unit?**

|                          |                          |                   |                     |
|--------------------------|--------------------------|-------------------|---------------------|
| (A) Heat and temperature | (B) Temperature and area | (C) Heat and work | (D) Length and work |
|--------------------------|--------------------------|-------------------|---------------------|

**2. Unit of temperature is:**

|       |       |         |       |
|-------|-------|---------|-------|
| (A) m | (B) S | (C) Mol | (D) K |
|-------|-------|---------|-------|

**3. One tera is equal to:**

|                |               |               |               |
|----------------|---------------|---------------|---------------|
| (A) $10^{-12}$ | (B) $10^{-8}$ | (C) $10^{12}$ | (D) $10^{18}$ |
|----------------|---------------|---------------|---------------|

**4. What is the term for the closeness of a measurement to the true value?**

|              |               |                 |              |
|--------------|---------------|-----------------|--------------|
| (A) Accuracy | (B) Precision | (C) Reliability | (D) Validity |
|--------------|---------------|-----------------|--------------|

**5. What type of error affects precision?**

|                      |                  |                 |                        |
|----------------------|------------------|-----------------|------------------------|
| (A) Systematic error | (B) Random error | (C) Human error | (D) Instrumental error |
|----------------------|------------------|-----------------|------------------------|

**6. What of the following statistical methods can be used to evaluate accuracy and precision?**

|                         |                         |                                 |                      |
|-------------------------|-------------------------|---------------------------------|----------------------|
| (A) Regression analysis | (B) Hypothesis analysis | (C) Statistical process control | (D) All of the above |
|-------------------------|-------------------------|---------------------------------|----------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                                     |                                                                   |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>[i]</b> Explain the three units derived for the basic SI units. (Constructed Response Questions) | <b>[ii]</b> Define physical quantities. used in chemistry?        |
| <b>[iii]</b> How can you avoid systematic errors in you measurements? (Descriptive Questions        | <b>[iv]</b> Define error? Give example?                           |
|                                                                                                     | <b>[v]</b> Define random error? Give example?                     |
| <b>[vi]</b> What is measurement?                                                                    | <b>[vii]</b> Name two ways to measure the correctness of results? |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|
| <b>1.</b> Explain the concept of base and derived units in the SI system?                                       |
| <b>2.</b> Describe the role of SI units in ensuring traceability and compatibility pf measurement in chemistry? |
| <b>3.</b> Define error? Explain its types?                                                                      |

Q1. Choose the correct option.

(6X1=6)

**1. Accidents often result form:**

|                            |                                        |                                           |                             |
|----------------------------|----------------------------------------|-------------------------------------------|-----------------------------|
| <b>(A)</b> Making mistakes | <b>(B)</b> Failure to use common sense | <b>(C)</b> Failure to follow instructions | <b>(D)</b> All of the above |
|----------------------------|----------------------------------------|-------------------------------------------|-----------------------------|

**2. Which of the following gases can displace oxygen in the air?**

|                     |                  |                   |                             |
|---------------------|------------------|-------------------|-----------------------------|
| <b>(A)</b> Nitrogen | <b>(B)</b> Argon | <b>(C)</b> Helium | <b>(D)</b> All of the above |
|---------------------|------------------|-------------------|-----------------------------|

**3. What of the following hazond signs indicates a biohazard?**

|                               |                             |                             |                         |
|-------------------------------|-----------------------------|-----------------------------|-------------------------|
| <b>(A)</b> Radioactive symbol | <b>(B)</b> Biohazard symbol | <b>(C)</b> Explosive symbol | <b>(D)</b> Toxic symbol |
|-------------------------------|-----------------------------|-----------------------------|-------------------------|

**4. Which of the following is not a type of hazard sings?**

|                         |                         |                        |                             |
|-------------------------|-------------------------|------------------------|-----------------------------|
| <b>(A)</b> Warning sign | <b>(B)</b> Caution sign | <b>(C)</b> Danger sign | <b>(D)</b> Directional sign |
|-------------------------|-------------------------|------------------------|-----------------------------|

**5. What should you do in case of a fire drill in the lab?**

|                                 |                                         |                                                         |                                           |
|---------------------------------|-----------------------------------------|---------------------------------------------------------|-------------------------------------------|
| <b>(A)</b> run to safety shower | <b>(B)</b> climb into the fume cupboard | <b>(C)</b> close gas valves and turn off all equipments | <b>(D)</b> carry chemicals out of the lab |
|---------------------------------|-----------------------------------------|---------------------------------------------------------|-------------------------------------------|

**6. Fire extinguishers should be located?**

|                       |                        |                                 |                             |
|-----------------------|------------------------|---------------------------------|-----------------------------|
| <b>(A)</b> Near exits | <b>(B)</b> In hallways | <b>(C)</b> In easily accessible | <b>(D)</b> All of the above |
|-----------------------|------------------------|---------------------------------|-----------------------------|

Q2. Write down short answers of following questions.

(7X2=14)

|                                                                                       |                                                                              |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>[i]</b> Define explosive chemicals?                                                | <b>[ii]</b> What are flammable chemicals?                                    |
| <b>[iii]</b> What are hazard signs are important in the workplace?                    | <b>[iv]</b> What is the primary purpose of wearing gloves in the laboratory? |
| <b>[v]</b> How for apart should fire extinguishers be located?                        | <b>[vi]</b> What should you do if you are exposed to hazardous chemicals?    |
| <b>[vii]</b> What is the importance of having an emergency response plane in the lab? |                                                                              |

Q3. Write detailed answers of the following questions.(Answer any 2) (2X5=10)

|                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.</b> Write down five such common safety instructions which are used to avoid any accident in the lab.(Descriptive Questions)      |
| <b>2.</b> What are hazard signs? also write the importance for using in the laboratories?                                              |
| <b>3.</b> What are the specific requirement for the location of fire extinguisher in a typical office building or school laboratories? |