**Rubric Chemistry SSC-I (Hard Area) 1st Annual Exam 2022**

**Section B Final: 03-06-2022 Time 5:05PM**

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| **Q No.**  **Part No** | **Criteria** | **Level 1 (Marks)** | **Level 2 (Marks)** | **Level 3 (Marks)** | **Level 4 (Marks)** | **Level 5 (Marks)** |
| **2(i)** | Identify the given branches of chemistry, | Correct identification of all three (3) | Correct identification of any two (2) | Correct identification of any one (1) | Wrong answer (0) |  |
| **2(ii)** | Oxidation state with any two rules for assigning oxidant state or number | Correct definition  (01) | Partially correct definition  (0.5) | Wrong answer (0) |  |  |
| Any two correct rules  (02) | Any one correct rule with the other one partially correct (1.5) | Any one correct rule  (1) | Any relevant information (0.5) | Wrong answer (0) |
| **2(iii)** | Empirical formula and molecular formula of butanoic acid | Writing correct molecular formula  (1.5) | Partially correct molecular formula (1) | Any relevant information (0.5) | Wrong answer  (0) |  |
| Writing correct empirical formula  (1.5) | Partially correct empirical formula  (1) | Any relevant information (0.5) | Wrong answer  (0) |  |

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| **2(iv)** | Calculation of mass of 1.5 moles of glucose | Correct calculation by using any method  (02) | Partially correct calculations (1) | Wrong answer (0) |  |  |
| Correct answer with unit (1) | Correct answer without unit (0.5) | Wrong answer (0) |  |  |
| **2 (v)** | Uses of isotopes in medical field | Any three correct uses of isotopes in medical field  (03) | Any two correct uses  (02) | Any one correct use  (01) | Wrong answer  (0) |  |
| **2(vi)** | Electronic configuration of phosphorous and identification of its group and period in periodic table | All three correct parameters i.e. electronic configuration, group and period  (03) | Any two correct parameters (02) | Any one correct parameter (01) | Wrong answer(0) |  |
| **2 (vii)** | Periodic law and prediction of its properties of elements using periodic table | Correct statement  (01) | Partially correct statement (0.5) | Wrong answer  (0) |  |  |
| Correct explanation of prediction of properties of elements  (02) | Partially correct explanation of prediction of properties of elements  (1) | Any relevant information (0.5) | Wrong answer  (0) |  |
| **2(viii)** | Explaining the composition of Aqua regia and how it is used to dissolve the noble metals | Correctly explaining the composition of Aqua regia (2.5) | Partially correct explanation of Aqua regia (1.5) | Wrong answer (0) |  |  |
| Writing correct reason of usage of Aqua regia in dissolving the noble metals (0.5) | Wrong answer (0) |  |  |  |
| **2 (ix)** | Explaining the reason of use of Silver and gold in jewelry and ornaments | Correctly explaining any three reasons of uses of silver and gold  (03) | Correctly explaining any two reasons of uses of silver and gold  (02) | Correctly explaining any one reason of uses of silver and gold  (01) | Any relevant information (0.5) | Wrong answer (0) |
| **2(x)** | Showing formation of anion from given non- metals using electron dot cross structures | Correct formation of anion from O (1.5) | Partially correct formation (1) | Any relevant information (0.5) | Wrong formation (0) |  |
| Correct formation of anion from Cl (1.5) | Partially correct formation (1) | Any relevant information (0.5) | Wrong formation (0) |  |
| **2 (xi)** | Differentiation between crystalline and amorphous solids | Any three correct points of difference  (03) | Any two correct points of difference  (02) | Any one correct points of difference  (01) | Partially correct (0.5) | Wrong formation (0) |
| **2(xii)** | Define percentage of a solution and four ways to express it | Correct definition/description of percentage of solution  (1) | Partially correct  (0.5) | Wrong answer  (0) |  |  |
| Writing four correct ways to express the percentage  (02) | Writing three correct ways to express the percentage  (1.5) | Writing two correct ways to express the percentage  (01) | Writing one correct way to express the percentage  (0.5) | Wrong answer (0) |
| **2 (xiii)** | Glucose is soluble in water but gasoline is not. Briefly explain, why? | Writing correct explanation for solubility of glucose in water  (1.5) | Writing partially correct explanation for solubility of glucose in water  (1) | Any relevant information (0.5) | Wrong answer  (0) |  |
| Writing correct explanation for insolubility of gasoline in water  (1.5) | Writing partially correct explanation for insolubility of gasoline in water  (1) | Any relevant information (0.5) | Wrong answer  (0) |  |
| **2(xiv)** | What is meant by corrosion? Explanation of how foods and beverage industries deal with corrosion? | Correct definition of corrosion (1) | Partially correct definition (0.5) | Wrong answer (0) |  |  |
| Correctly explaining the ways of dealing with corrosion (2) | Partially correct explanation (1) | Any relevant information  (0.5) | Wrong answer (0) |  |
| **2 (xv)** | Defining oxidation and reduction in terms of gain or loss of electrons, Identifying oxidizing and reducing agents from the given reactions. | Correct definition of the two (2) | Correctly defining any one (1) | Wrong answer (0) |  |  |
| Correct identification of oxidizing and reducing agents (1) | Partially correct (0.5) | Wrong (0) |  |  |

**Section C**

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| **Q No.**  **Part No** | **Criteria** | **Level 1 (Marks)** | **Level 2 (Marks)** | **Level 3 (Marks)** | **Level 4 (Marks)** | **Level 5 (Marks)** | **Level 6 (Marks)** |
| **3(a)** | Discussion of main postulates of Bohr atomic theory. Drawing the Bohr model of O indicating location of electrons, protons and neutrons | Writing five correct postulates of Bohr atomic theory  (05) | Writing any four correct postulates of Bohr atomic theory  (04) | Writing any three correct postulates of Bohr atomic theory  (03) | Writing any two correct postulates of Bohr atomic theory (02) | Writing only one correct postulate of Bohr atomic theory (01) | Wrong answer (0) |
| Correct drawing of Bohr Model of O  (01) | Partially Correct (0.5) | Wrong drawing  (0) |  |  |  |
| **3(b)** | Statement of Boyle’s law. Showing its mathematical interpretation and calculation of volume from given data | Correct statement  with mathematical expression (02) | Partially Correct  (1) | Any relevant information (0.5) | Wrong answer  (0) |  |  |
| Correct calculations with answer and unit  (02) | Partially correct calculations with answer and unit  (01) | Any relevant information (0.5) | Wrong answer  (0) |  |  |
| **4(a)** | Statement of octet rule and using this rule to draw electron dot and cross structure for CO2 and H2S | Correctly stating/defining the octet rule (01) | Partially Correct (0.5) | Wrong answer (0) |  |  |  |
| Correct drawing of dot and cross structure of CO2  (02) | Any relevant information (1) | Wrong answer  (0) |  |  |  |
| Correct drawing of dot and cross structure of H2S  (02) | Any relevant information (0.5) | Wrong answer  (0) |  |  |  |

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| **4(b)** | Describing the ways in which ionic bonds are formed in KCl and MgO using electron dot and cross structure | Correct description/definition of Ionic bond (01) | Partially correct (0.5) | Wrong answer (0) |  |  |  |
| Writing correct dot and cross structure of Ionic bond formation in KCl (2) | Partially correct dot and cross structure of Ionic bond formation in KCl (1) | Wrong answer (0) |  |  |  |
| Writing correct dot and cross structure of Ionic bond formation in MgO (2) | Partially correct dot and cross structure of Ionic bond formation in MgO (1) | Wrong answer (0) |  |  |  |
| **5 (a)** | Definition of Molarity and calculating molarity/mass of KOH in the given solution | Correct definition of Molarity  (01) | Partially correct definition  (0.5) | Wrong definition (0) |  |  |  |
| Applying any correct formula, correct calculations and correct answer alongwith correct unit  (04) | Any three correct aspects (3) | Any two correct aspects (2) | Partially correct response (1) | Wrong answer (0) |  |
| **5(b)** | Explanation of the principle, working and construction of galvanic cell with the help of labeled diagram | Correctly explaining principle of galvanic cell  (01) | Partially correct  (0.5) | Wrong answer (0) |  |  |  |
| Writing correct working of galvanic cell (02) | Writing Partially correct working of galvanic cell (01) | Any relevant information (0.5) | Wrong answer (0) |  |  |
| Correct labeled diagram/structure of galvanic cell  (03) | Partial correct labeled diagram/structure of galvanic cell  (02) | Any relevant information (01) | Wrong answer (0) |  |  |