|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WASHINGTON LATIN PUBLIC CHARTER SCHOOL****CHEMISTRY 2019-20** **UNIT 5B QUIZ 1 - INTRODUCTION TO OXIDATION AND REDUCTION**Answer all questionsRecommended time = 30 minutesBON COURAGE!

|  |  |  |  |
| --- | --- | --- | --- |
|   |  Name: |  |   |
|   | Score for Q1 (open response) | /10 |   |
|  | Score for Q2 - 6(multiple choice) | /5 |  |
|  | Bonus(Submits quiz on time and in correct format) | /5 |  |

  |

**SECTION A – OPEN RESPONSE**

|  |  |  |
| --- | --- | --- |
| **1.** | Acidified potassium dichromate, a mixture of K2Cr2O7 and H2SO4, is an important oxidizing agent. It reacts according to the following half-equation: Cr2O72- + 14H+ + 6e- 🡪 2Cr3+ + 7H2OOne of its uses is to determine the iron levels in blood. |  |
| (a) | Why is acidified potassium dichromate an oxidizing agent? | 2 |
| (b) | Deduce the oxidation numbers of the chromium (Cr) on both sides of the half-equation. Hence explain why the half-equation contains six electrons. | 3 |
| (c) | What species in the half-equation shows that the potassium dichromate has been acidified? | 1 |
| (d) | There are two ions which are present in acidified potassium dichromate but which do not appear in the above half-equation. Give the formula of either one of them. | 1 |
| (e) | When acidified potassium dichromate reacts with iron in blood, the iron is oxidized from Fe2+ to Fe3+. Write a half-equation for this oxidation. | 1 |
| (f) | Hence write an overall equation for the redox reaction between acidified potassium dichromate and the iron in blood. | 2 |
| TOTAL | 10 |

**SECTION B – MULTIPLE CHOICE**

**Answer these questions on the separate answer sheet.**

**Read the questions and make a note of all five of your answers before clicking on the answer sheet.**

|  |  |
| --- | --- |
| **Reaction V** | **3Cl2 + 6NaOH 🡪 5NaCl + NaClO3 + H2O** |
| **Reaction W** | **H2SO4 + 2KCl 🡪 K2SO4 + 2HCl** |
| **Reaction X** | **2VO2Cl + 3Zn + 8HCl 🡪 2VCl2 + 3ZnCl2 + 4H2O** |
| **Reaction Y** | **C6H12O6 + 6O2 🡪 6CO2 + 6H2O** |

|  |  |
| --- | --- |
| **1.** | Which of the above reactions is not a redox reaction? |
| **2.** | What is the oxidation number of V in VO2Cl (Reaction X)? |
| **3.** | What happens to the oxidation number of C in Reaction Y? |
| **4.** | What is the reducing agent in Reaction X? |
| **5.** | Which reaction is a disproportionation reaction? |

[**Go to the answer sheet**](https://docs.google.com/forms/d/e/1FAIpQLSdIrYKcP1KQD2zhY0ZuwnbcVkE9YRjSWQ4reDALxPuU3mDuzw/viewform?usp=sf_link)