**Exam Natural Science**

**II. Chemistry section:**

**Ex 1**: What is iron (III) oxide chemical formula?

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| **Answer** |

**Ex 2**: Calculate the volume of the HCl 2M solution react sufficiently with 0.05 mol FeO?

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| **Answer** |

**Ex 3**: What is the chemical formula of edible salt?

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| **Answer** |

**Ex 4**: Add 2.24 liters of CO2 to the excess Ca(OH)2 solution. Calculate the mass of precipitate obtained?

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| **Answer** |

**Ex 5**: How does hydrochloric acid react with copper (II) hydroxide to make a color solution?

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| **Answer** |

**Ex 6**: For 11 grams of Al and Fe mixtures to react just enough with H2SO4 to yield 8.96 liters of H2 (standard conditions). Calculate the mass of each metal in the original mixture.

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| **Answer** |

**Ex 7**: Give 5.6 grams of iron to react with excess hydrochloric acid. Calculates H2 gas volume (standard conditions).

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| **Answer** |

**Ex 8**: Give 8 grams of a metal oxide (valence II) sufficiently with 200 ml of HCl 1M to obtain solution X. Find the metal oxide.

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| **Answer** |

**Ex 9**: Dissolve 6.2 g Na2O in 2 liters of water. Calculate the molar concentration of the solution obtained.

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| **Answer** |

**Ex 10**: Give 200 g of a solution Na2CO3 10.6% with excess HCl. Calculate the volume of gas generated (standard conditions).

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| **Answer** |

**Ex 11**: Give *x* grams mixture of 2 metals A and B (unclear chemistry) with complete solution of HCl (both A and B both react). After the reaction was complete, 67 grams of salt and 8.96 liters of H2 (standard conditions) were obtained.

a. Write chemical equations?

b. Calculus *x*?

**Solusion**

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**Answers and scores**

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| **Ex** | **answer** | **scores** |
| 1 | Fe2O3 | 5 |
| 2 | 0,05 liters | 5 |
| 3 | CaO | 5 |
| 4 | 10 g | 5 |
| 5 | blue | 5 |
| 6 | mAl = 5,4 g; mFe = 56 g | 5 |
| 7 | 2,24 liters | 5 |
| 8 | CuO | 5 |
| 9 | 0,1M | 5 |
| 10 | 4,48 liters | 5 |

**Ex 11:**

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| **Answer** | **Scores** |
| Chemical equation: A + 2xHCl  2AClx + xH2 | 10 |
| B + 2yHCl  2BCly + yH2 | 10 |
| mol | 5 |
| g | 5 |
| By chemical equation, we have: nHCl  = 0,4.2 = 0,8 mol | 5 |
| mHCl = 0,8.36,5 = 29,2 g | 5 |
| Applying the law of conservation of mass, we have:  *x* = 67 + 0,8 – 29,2 = 38,6 g | 10 |

Author: Dinh Thi Uyen - Doan Lap Junior high school

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