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BASIC CALCULATIONS

Total Marks: 25

Duration: 0 hours, 20 minutes

Instructions to test takers

- 1. Answer all the questions in this paper
- All the answers for the questions in this paper will be found on Study Star (<u>www.studystar.me</u>)
- 3. Using the answers on the website, mark yourself truthfully and carefully.

Turn this page, time yourself and begin the test

Section A [10 marks]

- 1. Two elements X and Y were found to have valencies 2 and 3 respectively. What is the chemical formula for XY?
 - a. X_2Y_3
 - b. XY₂₃
 - c. X_3Y_2
- 2. Using a periodic table, state the valence of nitrogen.
 - a. 2
 - b. 3
 - c. 4
- 3. Write down the chemical formula of iron(iii)oxide.
 - a. Fe_3O_2
 - b. Fe_2O_3
 - c. $Fe(O_2)_3$
- 4. Calculate the relative molecular mass of Magnesium oxide (MgO).
 - a. 40
 - b. 8
 - c. 20
- Calculate the relative molecular mass of Potassium Carbonate (K₂CO₃)
 - a. 99
 - b. 67
 - c. 138
- 6. Balance the following chemical equation.

$$H + SO_4 \rightarrow H_2SO_4$$

- a. $2H + SO_4 \rightarrow H_2SO_4$
- b. $2H + 2SO_4 \rightarrow H_2SO_4$
- c. $H + 2SO_4 \rightarrow H_2SO_4$
- 7. Convert the following word equation into a chemical equation. Iron(iii)sulphate + Calcium chloride → Iron(iii)chloride + calcium sulphate
 - a. $Fe_3(SO_4)_2 + CaCl_2 \rightarrow Fe_3Cl + CaSO_4$
 - b. $Fe_2(SO_4)_3 + CaCl_2 \rightarrow FeCl_3 + CaSO_4$
 - c. $Fe_3SO_4 + CaCl_2 \rightarrow Fe_3Cl + CaSO_4$
- 8. Convert the following chemical equation into a word equation.

$$H_2 + Fe \rightarrow H_3Fe$$

- a. Hydrogen gas + Iron → ironic acid
- b. Hydrogen + Iron → ironic acid
- c. Hydrogen2 + iron → Ironic acid
- 9. Write down the chemical formula of Hydrogen Sulphate.
 - a. HSO₄
 - b. H₂SO₄
 - c. H₂(SO₄)₂
- 10.Balance CO + $O_2 \rightarrow CO_2$
 - a. $2CO + O_2 \rightarrow CO_2$
 - b. $2CO + 3O_2 \rightarrow 2CO_2$
 - c. $2CO + O_2 \rightarrow 2CO_2$

Section B [5 marks]

11. What do we call the combining power of an element? 12. Positively charged ions are known as _____ 13. Groups of atoms found in several compounds and are incapable of independent existence are called __ 14. Any charged atom is known as 15. Equations that contain ions are known as _____ Section C [10 marks] 16. Calculate the relative molecular mass of Iron(iii) sulphate. [2] 17. Balance $CH_4 + O_2 \rightarrow CO_2 + H_2O$ [2] 18. Calculate the mass of magnesium needed to react with 96g of [2] oxygen gas. 19. Write down an ionic equation from $Pb(NO_3)_{2(aq)} + 2KCl_{(aq)} \rightarrow PbCl_{2(s)} + 2KNO_{3(aq)}$ [2] 20. Write down the chemical equation of calcium oxide. [2]



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