CHEMISTRY

BOOKS - PATHFINDER CHEMISTRY (BENGALI ENGLISH)

BASICS IN CHEMISTRY

Question Bank

1. State the number of significant figures in the following

62.4

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2. State the number of significant figures in the following

0.0405

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3. What is the difference between 3.0g and 3.00g

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4. The population of India based on 1981 census figure was 684 millions. Express the results in scientific notation and calculate the number of significant figures.

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5. Add the numbers 28.521, 6.38 and 0.216 and report the final result correctly.

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6. The mass of copper metal is 6.432 gm and the density of copper is $7.6g.\,cm^{-3}$. What is the volume?

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7. Calculate the mass of 2.5 gram atom of magnesium.

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8. How many gram molecules are present in 4.9g of H_2SO_4?

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9. Why do we regard the gaseous state of water as vapours while that ammonia as gas?

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10. An element has fractional atomic mass. What does this indicate?

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11. When 4.2 g $NaHCO_3$ is added to a solution of CH_3COOH, weighing 10 g, it is observed that 2.2 g of CO_2 is released to the atmosphere. The residue is found to weigh 12.0 g. Show that these observations are in

agreement with the law of conservation of mass.

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12. Copper sulphate crystals contain $25.45\ \%\ Cu$ and $36.07\ \%\ H_2O$. If law of constant composition is true, calculate the weight of copper required to obtain 40g of crystalline copper sulphate.

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13. 10 ml of H_2 contain 2000 molecules under certain temperature and pressure. Calculate the number of molecules of oxygen whose volume is 150 ml at same temperature and pressure.

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14. One volume of hydrogen combines with sulphur to produce one volume of gas A. If the vapour density of A be 17, what its molecular formula.

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15. A flask P contains 0.5 mole of oxygen gas. Another flask Q contains 0.4 mole of ozone gas. Which of the two flask contains greater number of oxygen atoms?

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16. From 200mg of CO_2, 10^{21} molecules are removed. How many moles of CO_2 are left?

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17. How many molecules of CO_2 are present in one litre of air containing $0.03\,\%$ volume of CO_2 at N.T.P.?

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18. On analyzing an impure sample of sodium chloride, the percentage of chlorine was found to be 45.5. What is the percentage of pure sodium chloride in the sample?

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19. Copper gives two oxides. On heating one gram of each in hydrogen, we get 0.888g and 0.798g of the metal respectively. Show that these results are in agreement with law of multiple proportion.

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20. The average atomic mass of copper is 63.5u. It exists as two isotopes which are ${}_{29}Cu^{63}$ and ${}_{29}Cu^{65}$. Calculate the percentage of each isotopes present in it.

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21. P and Q are two elements which form P_2Q_3 and PQ_2 molecules. If 0.15g mole of each weighs 15.9g and 9.3g respectively. What are the atomic masses of the elements P and Q.

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22. A compound on analysis was found to contain $C = 34.6\,\%$, $H = 3.85\,\%$ and $O = 61.55\,\%$. Calculate the empirical formula.

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23. On heating 1.763 g of hydrated $BaCI_2$ to dryness, 1.505g of anhydrous salt is left. What is the formula of hydrated salt?

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24. 1.0g of Mg is burnt in a closed vessel which contains 0.5g of O_2. Which is the limiting reactant? What is the amount of MgO formed in the reaction?

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25. A mixture of FeO and Fe_3O_4 when heated in air to a constant weight gains 5% in its

weigh. Find the composition of the initial mixture.

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26. Butyric acid contains C,H,O elements. A4.24 mg sample of butyric acid is completely burnt in oxygen. It gives 8.45 mg of carbon dioxide and 3.46 mg of water. What is the mass percentage of each element? Determine the empirical and molecular formula of butyric acid if its molecular mass is 88u.

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