

Chemistry SA 2

1.	<p>Give reasons for the following observations:</p> <p>(a) The element carbon forms a very large number of compounds.</p> <p>(b) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.</p> <p>(c) Use of synthetic detergents causes pollution of water.</p>
2.	<p>(a) Which two criteria did Mendeleev use to classify the elements in his periodic table?</p> <p>(b) State Mendeleev's periodic law.</p> <p>(c) Why could no fixed position be given to hydrogen in Mendeleev's periodic table?</p> <p>(d) How and why does the atomic size vary as you go:</p> <p>(i) From left to right along a period?</p> <p>(ii) Down a group?</p>
3.	<p>(a) Why did Mendeleev have gaps in his periodic table?</p> <p>(b) State any three limitations of Mendeleev's classification.</p> <p>(c) How does electronic configurations of atoms change in a period with increase in atomic number?</p>
4.	<p>(a) What are 'groups' and 'periods' in the 'periodic table'?</p> <p>(b) Two elements M and N belong to groups I and II respectively and are in the same period of the periodic table. How do the following properties of M and N vary?</p> <p>(i) Sizes of their atoms</p> <p>(ii) Their metallic character</p> <p>(iii) Their valencies in forming oxides</p> <p>(iv) Molecular formulae of their chlorides</p>
5.	<p>(a) The structural formula of an ester is</p> $ \begin{array}{ccccccc} & \text{H} & \text{O} & & \text{H} & \text{H} & \\ & & & & & & \\ \text{H} & - \text{C} & - \text{C} & - \text{O} & - \text{C} & - \text{C} & - \text{H} \\ & & & & & & \\ & \text{H} & & & \text{H} & \text{H} & \end{array} $ <p>Write the structural formulae of the corresponding alcohol and the acid.</p> <p>(b) (i) Mention the experimental conditions involved in obtaining ethane from ethanol.</p> <p>(ii) Write the chemical equation of the above reaction.</p> <p>(c) Explain the cleansing action of soap.</p>
6.	<p>(a) Describe a chemical test to distinguish between ethanol and ethanoic acid.</p> <p>(b) Write a chemical equation to represent what happens when hydrogen gas is passed through an unsaturated hydrocarbon in the presence of nickel action as a catalyst.</p>
7.	<p>a) What is meant by periodicity in properties of elements with reference to the periodic table?</p> <p>b) Why do all the elements of the same group have similar properties?</p> <p>c) How will the tendency to gain electrons change as we go from left to right across a period? Why?</p>
8.	<p>(a) Distinguish between esterification and saponification reactions of organic compounds.</p> <p>(b) With a labelled diagram describe an activity to show the formation of an ester.</p>
9.	<p>An organic compound burns with a sooty flame. Is it a saturated or an unsaturated compound? Two carbon compounds A and B have the molecular formula C_3H_8 and C_3H_6 respectively. Which one of the two is most likely to show addition reaction? Justify your answer. Explain with the help of a chemical equation, how an addition reaction is useful in vegetable ghee industry.</p>
10.	<p>a) Atomic number is considered to be more appropriate parameter than atomic mass for classification of elements in a periodic table. Why?</p> <p>b) How does atomic size of elements vary on moving from</p> <p>i. left to right in a period.</p> <p>ii. from top to bottom in a group.</p> <p>Give reasons for your answer.</p>