

Name:

Class: X

Time: 1 Hour

Date: 15-11-2015

Course: VIKAAS

SCIENCE

1.	Write the name and formula of the 2 nd member of homologous series having general formula C_nH_{2n} .	2
2.	Draw the electron-dot structure for ethyne. A mixture of ethyne and oxygen is burnt for welding. In your opinion, why cannot we use a mixture of ethyne and air for this purpose ?	3
3.	List two tests for experimentally distinguishing between an alcohol and a carboxylic acid and describe how these tests are performed.	3
4.	(a) On dropping a small piece of sodium into an organic compound 'A' with molecular formula C_2H_6O In a test tube a brisk effervescence is observed. On bringing splinter the gas evolved burn with a pop sound. Identify 'A' and write the chemical equation. (b) What will happen when you heat the organic compound 'A' at 443K with the excess of concentrated Sulphuric acid?	3+2
5.	(a) What is saponification? Write a chemical equation involved in this process. (b) Why are detergents more effective in washing clothes with hard water than soaps? (c) Name the following compounds <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(i)</p> $\begin{array}{ccccccc} & H & H & H & & & \\ & & & & & & \\ H & -C & -C & -C & -C & -H & \\ & & & & & & \\ & H & H & H & H & & \end{array}$ </div> <div style="text-align: center;"> <p>(ii)</p> $\begin{array}{ccccccc} & H & H & H & & & \\ & & & & & & \\ H & -C & -C & -C & -C & -OH & \\ & & & & & & \\ & H & H & H & O & & \end{array}$ </div> </div>	2+2+1
6.	(a) List two reasons for carbon forming a large number of compounds. (b) An organic acid 'X' is a liquid which often freezes during winter time in cold countries. It has a molecular formula $C_2H_4O_2$. On warming with the ethanol in the presence of a few drops of conc. H_2SO_4 a compound Y with sweet smell is formed. i) Identify X and Y. ii) Write chemical equation for the reaction involved.	2+3
7.	Identify the compounds A to E in the following reaction sequence:- i) $CH_3CH_2OH \xrightarrow{KMnO_4/KOH + dil\ HCl} A + H_2O$ ii) $CH_3CH_2OH + A \xrightarrow{conc.\ H_2SO_4 + Heat} B + H_2O$ iii) $B + NaOH \rightarrow C + CH_3CH_2OH$ iv) $A + NaHCO_3 \rightarrow C + D + H_2O$ v) $CH_3CH_2OH + E \rightarrow CH_3CH_2ONa + H_2$	5
8.	Write the atomic numbers of two elements 'X' and 'Y' having electronic configurations 2, 8, 2 and 2, 8, 6 respectively.	2

9.	Give an account of the process adopted by Mendele'ev for the classification of elements. How did he arrive at "Periodic Law"?	2																														
10.	An element has electronic configuration 2, 8, 3. What is the atomic number of this element? To which (a) group and (b) period this element belong?	3																														
11.	An element X has mass number 35 and number of neutrons 18 (a) write the atomic number of X (b) give the electronic configuration of X (c) to which group and period does it belong?	5																														
12.	Consider two elements 'A'(atomic number 17) and 'B' (atomic number 19); (i) write the positions of these elements in the modern periodic table giving justification. (ii) write the formula of the compound formed when 'A' combines with 'B'. (iii) draw the electron dot structure of the compound and state the nature of the bond formed between the two elements.	2+1+2																														
13.	<p>In the following table, the positions of six elements A, B, C, D, E and F are given as they are in the Modern Periodic Table :</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Group/period</th> <th>1</th> <th>2</th> <th>3-12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>A</td> <td></td> <td></td> <td>B</td> <td></td> <td>C</td> <td></td> <td></td> <td>D</td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td>E</td> <td></td> <td></td> <td></td> <td>F</td> </tr> </tbody> </table> <p>On the basis of the above table, answer the following questions :</p> <p>(i) Name the element which forms only covalent compounds. (ii) Name the element which is a metal with valency three. (iii) Name the element which is a non-metal with valency three. (iv) Out of B and C, whose atomic radius is bigger and why ? (v) Write the common name for the family to which the elements D and F belong.</p>	Group/period	1	2	3-12	13	14	15	16	17	18	2	A			B		C			D	3					E				F	5
Group/period	1	2	3-12	13	14	15	16	17	18																							
2	A			B		C			D																							
3					E				F																							