CHEMISTRY

BOOKS - SCIENCE DARPAN (ENGLISH MEDIUM)

CARBON AND ITS COMPOUNDS

QUESTIONS AND ANSWERS

1. State the proportion of carbon present in the earth's crust and atmosphere.

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2. State the properties of ionic compounds.

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3. State the properties of carbon compounds.

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4. State the properties of covalent compounds.

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5. Explain the tetravalency of carbon.

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6. Explain the formation of hydrogen molecule `(H_(2))` by covalent bond.

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7. Explain the formation of covalent bond in hydrogen molecule `(H_(2))`.

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8. Explain the formation of covalent bond in chiorine molcule `(Cl_(2))`.

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9. Explain the formation of covalent bonds in water molecule `(H_(2)O)`.

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10. Explain the formation of covalent bonds in ammonia molecule `(NH_(3))`.

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11. Explain the formation of covalent bonds in methane molecule `(CH_(4))`.

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12. Explain the formation of covalent bonds iu oxygen molecule `(O_(2))`.

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13. Explain the formation of covalent bonds in nitrogen molecule `(N_(2))`.

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14. What is meant by allotropes ?

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15. Write a note on 'Allotropes of carbon'.

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16. What would be the electron dot structure of carbon dioxide which has the formula `CO_(2)` ?

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17. What would be the electron dot structure of a molecule of sulphur which is made-up of eight atoms of sulphur ? [Hint : The eight atoms of sulphur are joined together in the form of ring.]

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18. What are the two properties of carbon which enables carbon to form a large number of compounds ?

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19. Which postulate was disproved by Wohler ? Explain with example.

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20. Draw the electron dot structure of ethane.

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21. How is the structural formula of any hydrocarbon compound represented ? Explain it with an example of ethane.

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22. Draw the structural formula oof ethane.

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23. Draw the electron dot structure of ethene.

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24. Draw the electron dot structure of ethyne.

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25. What is meant by saturated and unsaturated carbon compounds ?

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26. Mention the names, molecular formulae and structures of first six saturated compounds of carbon and hydrogen.

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27. What are hydrocarbon compounds ? Explain its classification.

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28. Explain the classification of hydrocarbon compounds based on their structures.

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29. Draw the electron dot structure of cyclohexane `(C_(6)H_(12))`.

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30. Draw the electron dot structure of benzene `(C_(6)H_(6))`.

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31. What is meant by heteroatom ? Give examples.

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32. What are functional groups ? Give examples.

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33. What is meant by homologous series! Mention its characteristics.

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34. Explain in brief : The method of nomenclatureof carbon compounds.

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35. Write the names of the following compounds :

(a) `CH_(3)-CH_(2)-underset(Br)underset(|)CH-CH_(3)`

(b) `CH_(3)-CH_(2)-underset(OH)underset(|)CH-CH_(2)-CH_(3)`

(c) `CH_(3)-CH_(2)-CH_(2)-CHO`

(d) `CH_(3)-underset(O)underset(||)C-CH_(2)-CH_(3)`

(e) `CH_(3)-CH_(2)-CH_(2)-underset(O)underset(||)C-OH`

(f) `CH_(3)-CH_(2)-CH_(2)-CH=CH_(2)`

(g) `CH_(3)-CH_(2)-CH_(2)-C-=CH`

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36. Write the structural formulae of the following compounds :

(1) Methanoic acid

(2) 1-Bromobutane

(3) Methanal

(4) 2-Bromopropane

(5) Butanal

(6) Pentene

(7) Pentyne

(8) Pentan-2-one

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37. What are structural isomers ? Give examples.

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38. What will be the formula and electron dot structure of cyclopentane ?

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39. Draw the structures for the following compounds :

(i) Ethanoic acid

(ii) Bromopentane

(iii) Butanone

(iv) Hexanal

Are structural isomers possible for bromopentane ?

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40. How would you name the following compounds ?

(i) `CH_(3)-CH_(2)-Br`

(ii) `H-overset(H)overset(|)C=O`

(iii) `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-C-=C-H`

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41. Name the major chemical properties (reactions) of carbon compounds.

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42. What is meant by combustion ? Explain it by giving an example.

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43. Describe the formation of coal and petroleum.

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44. What is meant by oxidation and oxidising agent ?

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45. Explain : Oxidation of alcohol

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46. What is a catalyst? Give examples.

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47. Explain : Addition reaction

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48. What is meant by substitution reaction ? Explain.

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49. Why is the conversion of ethanol to ethanoic acid an oxidation reaction ?

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50. A mixture of oxygen and ethyne is burnt for welding. Can you tell why a mixture of ethyne and air is not used ?

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51. State the molecular formula and structural formula of ethanol and ethanoic acid.

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52. Mention the physical properties of ethanol.

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53. State the uses of ethanol.

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54. Explain : Chemical reactions of ethanol

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55. How do alcohol affect living beings? Explain.

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56. "Alcohol is harmful as beverages." - Justify the statement.

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57. What should be done to avoid the misuse of ethanol for drinking purpose ?

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58. Explain the use of alcohol as a fuel.

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59. Write the physical properties of ethanoic acid.

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60. Explain the chemical properties of ethanoic acid.

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61. Explain the chemical reactions of ethanoic acid.

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62. Write the uses of ethanoic acid.

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63. How would you distinguish experimentally between an alcohol and a carboxylic acid ?

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64. What are oxidising agents ?

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65. What is meant by soap? Mention the structure of molecule of soap.

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66. Represent with structure of the functional group of soap and detergent.

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67. Explain : Mechanism of micelle formation.

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68. Explain the effect of soap in cleansing action.

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69. Explain the mechanism of cleansing action of soap.

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70. Write a note on detergents.

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71. Out of soap and detergent, which is more effective? Why? The use of detergent has increased over soap. Why?

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72. Would you be able to check if water is hard by using a detergent?

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73. People use a variety of methods to wash clothes. Usually after adding the soap, they 'beat' the clothes on a stone, or beat it with a paddle, scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to get clean clothes ?

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ACTIVITY

1. Make a list of ten things you have used or consumed since morning.

Compile this list with the lists made by your classmates and then sort the items into the adjascent table.

If there are items which are made up of more than one material, put them into both the relevant columns.

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2. Calculate the difference in the formulae and molecular masses for (a) `CH_(3)OH` and `C_(2)H_(5)OH,` (b) `C_(2)H_(5)OH` and `C_(3)H_(7)OH` and (c) `C_(3)H_(7)OH` and `C_(4)H_(9)OH`

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3. Is there any similarity in these three compounds mentioned above ?

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4. Arrange these alcohols in the order of increasing carbon atoms to get a family. Can we call this family a homologous series ?

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5. Generate the homologous series for compounds containing up to four carbons for the other functional groups given in Q.30.

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6. When do you get a yellow flame?

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7. When do you get a blue flame?

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8. Does the colour of potassium permanganate persist when it is added initially?

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9. Why does the colour of potassium perman-ganate not disappear when excess is added ?

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10. What do you observe ?

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11. How will you test the gas evolved ?

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12. Are both acids indicated by the litmus test ?

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13. Does the universal indicator show them as equally strong acids ?

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14. What do you observe ?

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15. Pass the gas produced through freshly prepared lime water. What do you observe ?

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16. Can the gas produced by the reaction between ethanoic acid and sodium carbonate be identified by this test ?

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17. Can you see the oil and water layers separately in both the test tubes immediately after you stop shaking them ?

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18. Leave the test tubes undisturbed for some time and observe. Does the oil layer separate out? In which test tube does this happen first?

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19. In which test tube do you get more foam ?

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20. In which test tube do you observe a curdy white precipitate ?

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21. Do both test tubes have the same amount of foam ?

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22. In which test tube is a curdy white solid formed ?

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TEXTUAL EXERCISE

1. Ethane, with the molecular formula `C_(2)H_(6)` has…

A. 6 covalent bonds.

B. 7 covalent bonds.

C. 8 covalent bonds.

D. 9 covalent bonds.

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2. Butanone is a four carbon compound with the functional group…

A. carboxylic acid.

B. aldehyde.

C. ketone.

D. alcohol.

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3. While cooking, if the bottom of the vessel is getting blackened on the outside, it means that …

A. the found is not cooked completely.

B. the fuel is not burning completely.

C. the fuel is wet.

D. the fule is burning completely.

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4. Explain the nature of the covalent found using the bond formation in `CH_(3)Cl`.

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5. Draw the electron dot structures for -

(a) Ethanoic acid

(b) `H_(2)S`

(c) Propanone

(d) `F_(2)`

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6. What is an homologous series ? Explain with an example.

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7. How can ethanol and ethanoic acid be diffrerentiated on the basis of their physical and chemical properties ?

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8. Why does micelle formation take place when soap is added to water ? Will a micelle be formed in other solvents such as ethanol also ?

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9. Why are carbon and its compounds used as fuels for most applications ?

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10. Explain the formation of scum when hard water is treated with soap.

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11. What change will you observe if you test soap with litmus paper (red or blue) ?

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12. What is hydrogenation? What is its industrial application ?

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13. Which of the following hydrocarbons undergo addition reactions ?

`C_(2)H_(6),C_(3)H_(8),C_(3)H_(6),C_(2)H_(2)` and `CH_(4)`.

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14. Give a test that can be used to differentiate between saturated and unsaturated hydrocarbons.

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ADDITIONAL QUESTIONS AND ANSWERS

1. Write the IUPAC names of the following compounds using their structural formulae :

1. `CH_(3)-CH_(2)-CH_(2)-Cl`

2. `CH_(3)-underset(CH_(3))underset(|)CH-CH_(2)-Br`

3. `CH_(3)-CH_(2)-underset(Br)underset(|)CH-CH_(2)-CH_(3)`

4. `CH_(3)-CH_(2)-CH_(2)-CH_(2)-OH`

5. `H_(3)C-underset(OH)underset(|)overset(CH_(3))overset(|)C-CH_(3)`

6. `CH_(3)-CH_(2)-underset(OH)underset(|)CH-CH_(3)`

7. `CH_(3)-CH_(2)-CH_(2)-CHO`

8. `CH_(3)-CHO`

9. `CH_(3)-CH_(2)-CH_(2)-CH_(2)-CHO`

10 `CH_(3)-CO-CH_(3)`

11. `CH_(3)-CH_(2)-CO-CH_(3)`

12. `CH_(3)-CH_(2)-CH_(2)-CO-CH_(3)`

13. `CH_(3)-CH_(2)-COOH`

14. `CH_(3)-CH_(2)-CH_(2)-COOH`

15. `CH_(3)-COOH`

16. `CH_(3)-CH=CH_(2)`

17. `CH_(3)-CH_(2)-CH=CH_(2)`

18. `CH_(3)-C-=CH`

19. `CH_(3)-CH_(2)-C-=CH`

20. `CH-=CH`

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2. Give structural formulae of the following compounds using their IUPAC names :

1. 2-Chloropropane

2. 1-Bromopentane

3. 2-Bromo-2-methylpropane

4. 1-Pentanol

5. Ethanol

6. Methanol

7. Methanal

8. Ethanal

9. 3-Pentanone

10. Propanone

11. Methanoic acid

12. Pentanoic acid

13. Ethene

14. 2-Butene

15. 1-Pentyne

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3. Distinguish between :

(1) Ionic compounds and Covalent compounds

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4. Distinguish between :

(2) Diamond and Graphite

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5. Distinguish between :

(3) Saturated carbon compounds and Unsaturated carbon compounds

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6. Give scientific reasons for the following statements :

(1) Candle burns with a yellow flame.

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7. Burning substances (fuels) burn with or without a flame.

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8. Diamond has high melting point, in spite of having covalent bonds.

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OBJECTIVE QUESTIONS AND ANSWERS (Answer the following questions in one word or in one sentence :

1. Write the number of electrons in L shell of carbon, oxygen and nitrogen respectively.

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2. Mention the major component of biogas and CNG.

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3. Are the boiling points and melting points of covalent compounds high or low in comparison to ionic compounds ?

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4. Write the property of electrical conductivity of carbon compounds.

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5. Which allotrope of carbon is very hard ?

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6. Name the element which is next to carbon according to catenation property.

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7. What is the number of carbon compounds estimated approximately?

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8. State the general formula of saturated alkane compounds.

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9. State the general formula of unsaturated alkene compounds.

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10. Mention the general formula of unsaturated alkyne compounds.

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11. Compare the chemical reactivity of saturated and unsaturated compounds.

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12. Write the structural formula of functional groups (i) aldehyde, (ii) ketone and (iii) carboxylic acid respectively.

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13. State the elements used as catalyst in hydrogenation reaction.

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14. Which ions are present in hard water?

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15. Identify the functional groups in butanone and butanal respectively.

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OBJECTIVE QUESTIONS AND ANSWERS

1. Define :

Covalent bond

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2. Define :

Catenation

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3. Define :

Saturated carbon compounds

View Text Solution

4. Define :

Unsaturated carbon compounds

View Text Solution

5. Define :

Hydrocarbons

View Text Solution

6. Define :

Functional group

View Text Solution

7. Define :

Homologous series

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8. Define :

Combustion reaction

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9. Define :

Oxidising agent

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10. Define :

Addition reaction

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11. Define :

Substitution reaction

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12. Define :

Esterification reaction

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13. Define :

Saponification reaction

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OBJECTIVE QUESTIONS AND ANSWERS (Fill in the blanks)

1. The molecular formula of ammonia is .....

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2. ..... is a major component of biogas and CNG.

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3. Carbon atoms are linked together with a ……. in saturated carbon compounds.

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4. Fuels such as coal and petroleum contain some amount of ..... and ..... in them.

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5. The molecular formula of propane is .....

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6. The general formula of alkene is .....

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7. Most of the carbon compounds release a large amount of ..... and ..... on burning.

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8. Unsaturated hydrocarbons gives a ..... flame with lots of ..... smoke.

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9. Alcohols are oxidised to…… .

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10. ..... are substances that cause a reaction to proceed at a higher rate without the reaction itself being affected.

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11. ..... catalyst is used in hydrogenation of vegetable oils.

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12. Animals fats contain esters of ..... .

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13. Substitution of hydrogen of methane by chlorine in the presence of sunlight forms .....

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14. ..... is used in the preparation of tincture iodine.

View Text Solution

15. Reaction of alcohol with sodium forms .....

View Text Solution

16. Concentrated H_2SO_4 is a .....

View Text Solution

17. Reaction of ethanoic acid with ethanol in presence of acid catalyst forms .....

View Text Solution

18. The molecules of soap are ..... salts of long chain carboxylic acids.

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19. Micelles forms an ..... in water.

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20. Unsaturated hydrocarbons add hydrogen in the presence of catalyst such as ..... to give saturated hydrocarbons.

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View Text Solution

21. Compound made-up of only carbon and hydrogen is called .....

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OBJECTIVE QUESTIONS AND ANSWERS (State whether the following statements are true or false)

1. Alkenes or alkynes are more reactive than their corresponding alkane.

Answer: 1

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2. The difference in number of atoms or molecular formula between two successive members in homologous series is `-CH_(2)`.

Answer: 1

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3. The molecular formula of formaldehyde is HCHO.

Answer: 1

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4. Detergents are used to prepare shampoos and products for cleaning clothes.

Answer: 1

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5. Soap solution appears cloudy because micelles scatter the light.

Answer: 1

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6. Reaction of carboxylic acid with sodium carbonate produces carbon dioxide.

Answer: 1

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7. Dyes are added to colour the alcohol blue. This is called denatured alcohol.

Answer: 1

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8. Coal and petroleum have some amount of nitrogen and sulphur in them, hence, their combustion causes pollution in environment.

Answer: 1

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OBJECTIVE QUESTIONS AND ANSWERS (Match the following)

1.

Column I (Reaction)	Column II (Type of reaction)
1. $CH_3OH + CH_3COOH \xrightarrow{H^+} CH_3COOCH_3 + H_2O$	P. Addition reaction
2. $H_2C = CH_2 + H_2 \xrightarrow{Ni} CH_3 - CH_3$	Q. Substitution reaction
3. $CH_4 + Cl_2 \xrightarrow{\text{Sunlight}} CH_3Cl + HCl$	R. Neutralisation reaction
4. $CH_3COOH + NaOH \longrightarrow CH_3COONa + H_2O$	S. Esterification reaction

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2.

Column I (Molecule)	Column II (Number of bonds)
1. Molecule of hydrogen	P. Double bond and single bond
2. Molecule of nitrogen	Q. Only single bond
3. Molecule of oxygen	R. Triple bond
4. Benzene	S. Only double bond

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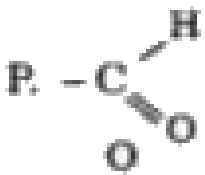
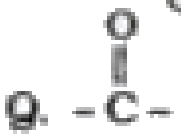
3.

Column I (Functional group)	Column II (Symbol)
1. Alcohol	P. 
2. Aldehyde	
3. Ketone	Q. 
4. Carboxylic acid	R. 
	S. 

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OBJECTIVE QUESTIONS AND ANSWERS (Mention the formulae, and names of the products in the following reactions)

1. `C+O_(2)to`

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2. `CH_(4)+O_(2)to`

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3. `CH_(3)CH_(2)OH+O_(2)to`

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4. `CH_(3)OH overset({:(" Oxidation"),("Alkaline "KMnO_(4)):})underset(Delta)to`

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5. `CH_(3)CH_(2)OH overset("Alkaline "KMnO_(4))underset(Delta)to`

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6. `CH_(3)OH+Nato`

View Text Solution

7. `CH_(3)CH_2)OH+Na to`

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8. `CH_(3)CH_(2)OH overset("Hot concentrated")underset(H_(2)SO_(4))to`

View Text Solution

9. `CH_(3)CH_(2)CH_(2)OH overset("Hot concentrated")underset(H_(2)SO_(4))to`

View Text Solution

10. `CH_(3)COOH+CH_(3)CH_(2)OH overset("Acid")to`

View Text Solution

11. `CH_(3)CH_(2)COOH+CH_(3)OH overset("Acid")to`

View Text Solution

12. `CH_(3)COOCH_(2)CH_(3)overset(NaOH)to`

View Text Solution

13. `CH_(3)CH_(2)COOCH_(3)overset(NaOH)to`

View Text Solution

14. `CH_(3)COOH+KOH to`

View Text Solution

15. `CH_(3)CH_(2)COOH+KOH to`

View Text Solution

16. `CH_(3)COOH+Na_(2)CO_(3)to`

View Text Solution

17. `CH_(3)CH_(2)COOH+Na_(2)CO_(3)to`

View Text Solution

18. `CH_(3)COOH+NaHCO_(3)tto`

View Text Solution

19. `CH_(3)CH_(2)COOH+NaHCO_(3)to`

View Text Solution

20. `CH_(3)CH_(2)CH_(2)COOH+NaHCO_(3)to`

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OBJECTIVE QUESTIONS AND ANSWERS (Choose the corrrect option from those given below each question)

1. By which name the compounds containing functional group -CHO are known ?

A. Amide

B. Aldehyde

C. Ketone

D. Alcohol

Answer: B

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2. Which functional group is present in carboxylic acid ?

A. `{:("\"),("/"):}C=0`

B. `-COOH`

C. `-CHO`

D. `-OH`

Answer: B

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3. Which functional group is to be given suffixol in the nomenclature ?

A. `-CHO`

B. `{:("\"),("/"):}C=O`

C. `-OH`

D. `-X`

Answer: C

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4. Which functional group is present in meyhyl ethanoate ?

A. Alcohol

B. Halide

C. Ketone

D. Ester

Answer: D

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5. Which of the following is obtained by the reduction of methanal ?

A. Ethanol

B. `CO_(2)` and `O_(2)`

C. Methanol

D. All of the given

Answer: C

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6. Which of the following reaction takes place between the reaction of alcohol and carboxylic aicd in the presence of concentrated `H_(2)SO_(4)` ?

A. Hydrolysis

B. Beta elimination

C. Saponification

D. Esterification

Answer: D

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7. In order to form a compound, which of the following functional group possess minimum three carbon atoms ?

A. `-COOH`

B. `-CHO`

C. `{:("\"),("/"):}C=O`

D. `-C-O-`

Answer: C

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8. Which functional group is present in ketone ?

A. `{:("\"),("/"):}C=O`

B. `-COOH`

C. `-CHO`

D. `-OH`

Answer: A

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9. Which functional group is present in aldehyde ?

A. `{:("\"),("/"):}=O`

B. `-COOH`

C. `-CHO`

D. `-OH`

Answer: C

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10. Name the substance having functional group `-OH`.

A. Alcohol

B. Ketone

C. Ester

D. Carboxylic acid

Answer: A

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11. How many carbon atom/s are present in formic acid ?

A. 1

B. 2

C. 3

D. 4

Answer: A

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12. Which of the following is used as food preservator ?

A. `CH_(3)OH`

B. `CH_(3)COOH`

C. `CH_(3)CHO`

D. `CH_(3)COCH_(3)`

Answer: B

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13. In soap and detergent, non-polar tail is attracted towards …… And an anionic head is attracted towards …….. .

A. stain, glycerol

B. water molecules, stain

C. stain, water molecules

D. water molecules, glycerol

Answer: C

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14. Write the common name of ethanoic acid.

A. Formic acid

B. Acetic acid

C. Propanoic acid

D. Butanoic acid

Answer: B

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15. A molecule of `NH_(3)` (ammonia) has …

A. only single bonds.

B. only double bonds.

C. only triple bonds.

D. two double bonds and one single bond.

Answer: A

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16. Fullerene is an allotropic form of …

A. phosphours

B. sulphur

C. carbon

D. tin

Answer: C

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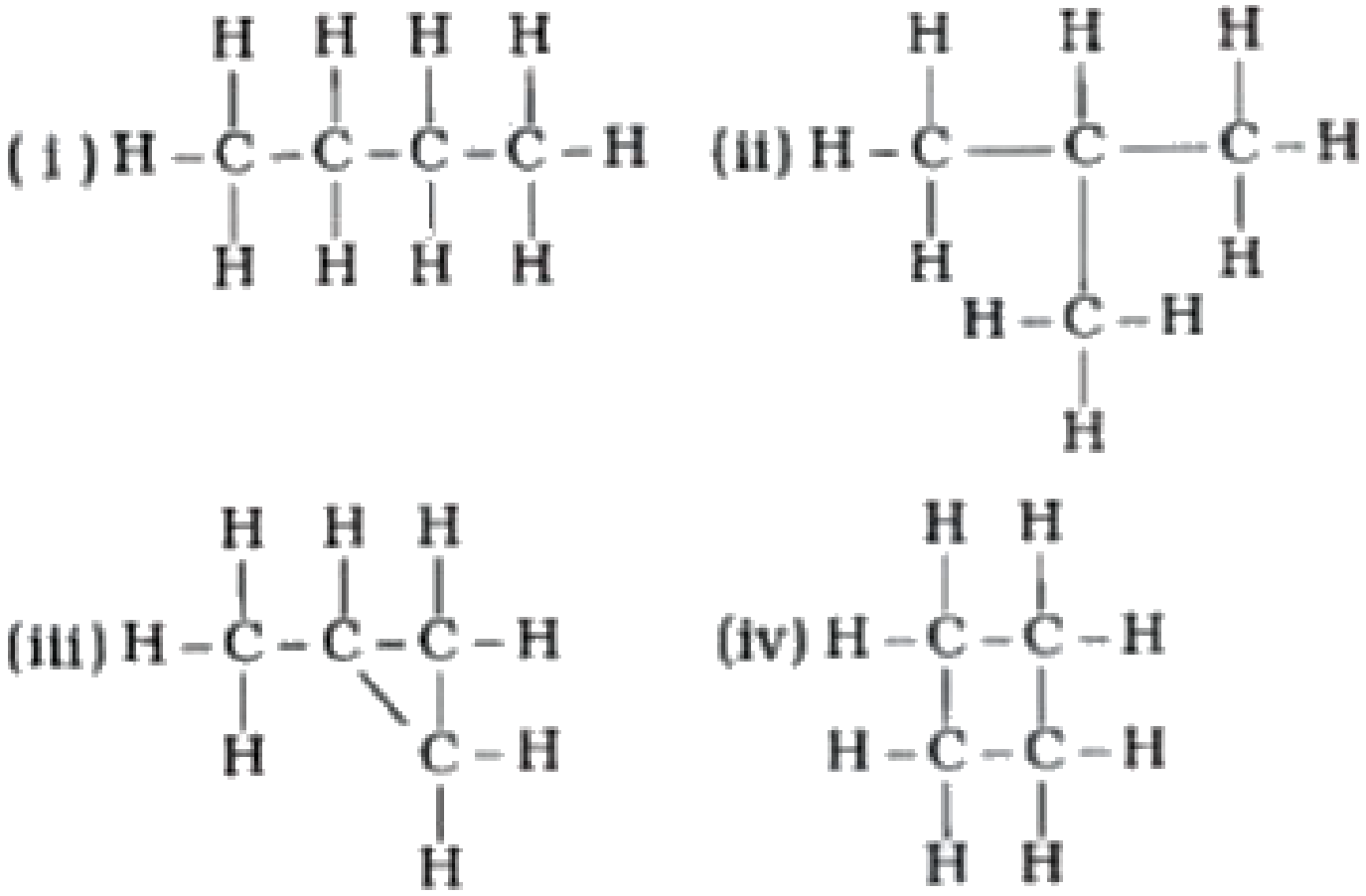
17. Which of the following are correct structural isomers of butane ?



A. (i) and (iii)

B. (ii) and (iv)

C. (i) and (ii)

D. (iii) and (iv)

Answer: C

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18. `CH_(3)CH_(2)OH overset("Alkaline "KMnO_(4)+"Heat")toCH_(3)COOH`

In the above given reaction, alkaline `KMnO_(4)` acts as …

A. reducing agent

B. oxidising agent

C. catalyst

D. dehydrating agent

Answer: B

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19. Oils on treating with hydrogen in the presence of palladium or nickel catalyst form fats. This is an example of …

A. addition reaction.

B. substitution reaction.

C. rearrangement reaction.

D. oxidation reaction.

Answer: A

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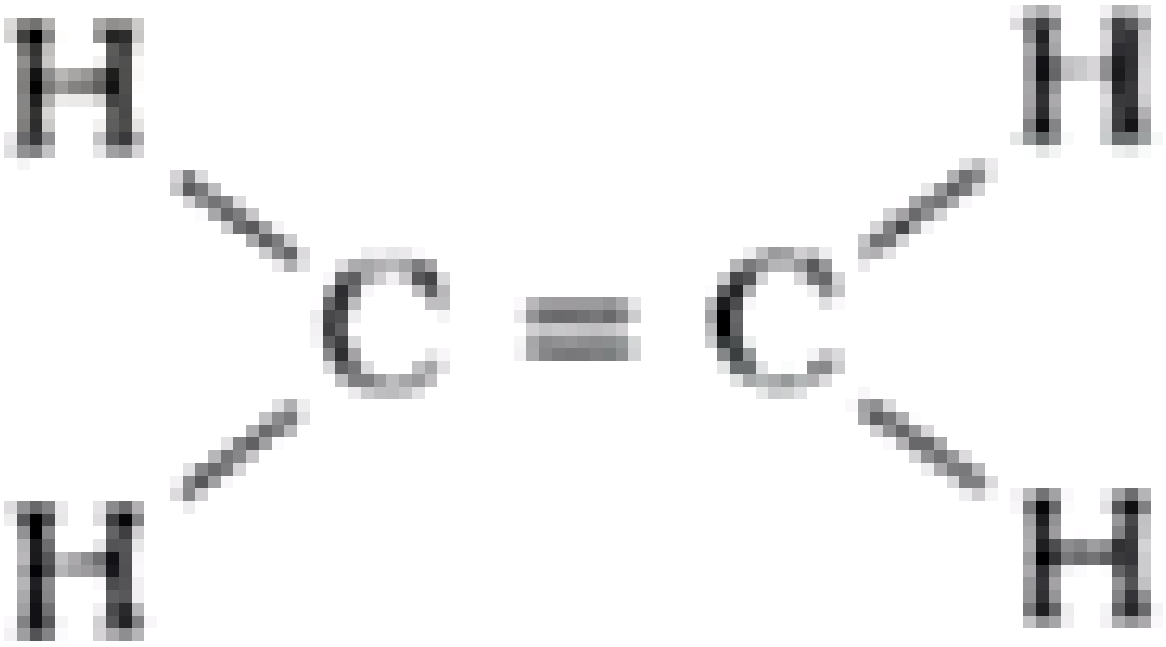
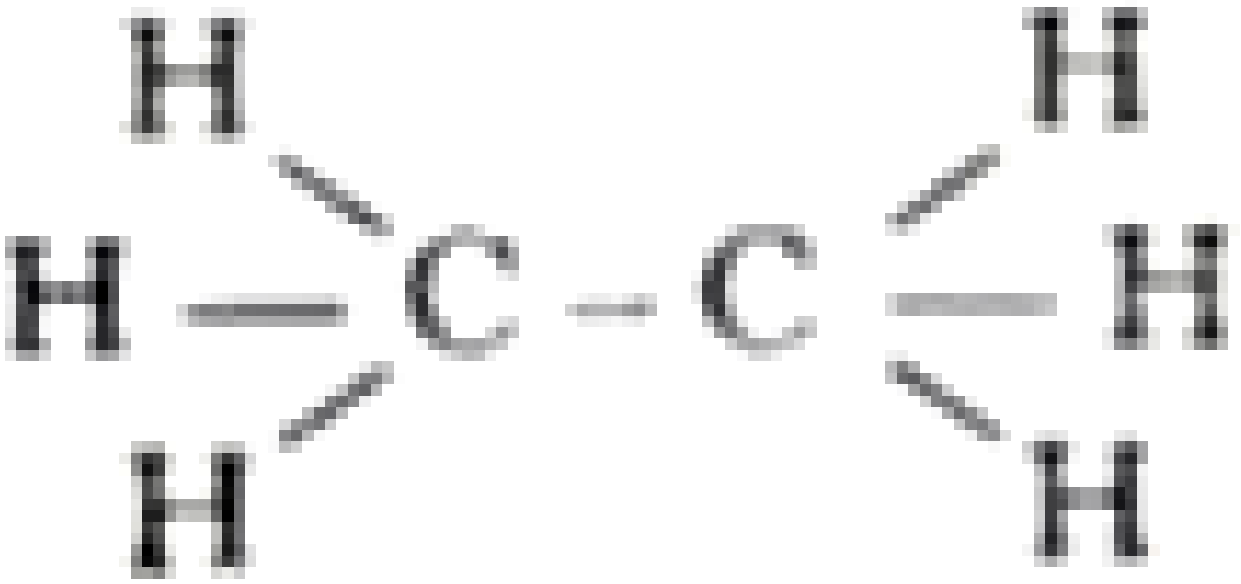
20. Structural formula of ethyne is …

A. `H-C-=C-H`

B. `H_(3)C-C-=CH`



C.



D.

Answer: A

View Text Solution

21. Which of the following are unsaturated compounds ?

(i) Propane

(ii) Propene

(iii) Propyne

(iv) Chloropropane

A. (i) and (ii)

B. (ii) and (iv)

C. (iii) and (iv)

D. (ii) and (iii)

Answer: D

View Text Solution

22. In which condition, chlorine reacts with saturated hydrocarbons at room temperature ?

A. In the absence of sunlight

B. In the presence of sunlight

C. In the presence of water

D. In the presence of hydrochloric acid

Answer: B

View Text Solution

23. Which products are formed by the reaction between ethanol and sodium ?

A. Sodium ethanoate and hydrogen

B. Sodium ethanoate and oxygen

C. Sodium ethoxide and hydrogen

D. Sodium ethoxide and oxygen

Answer: C

View Text Solution

24. The correct structural formula of butanoitc acid is …

A. `H-underset(H)underset(|)overset(H)overset(|)C-overset(H)overset(|)C=overset(H)overset(|)C-overset(O)overset(||)C-OH`

B. `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-overset(O)overset(||)C-OH`

C. `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-OH`

D. `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-overset(O)overset(||)C-OH`

Answer: D

View Text Solution

25. Vinegar is a solution of …

A. 50% - 60% acetic acid in alcohol.

B. 5% - 8% acetic acid in alcohol.

C. 5% - 8% acetic acid in water.

D. 50% - 60% acetic acid in water.

Answer: C

View Text Solution

26. Carbon forms four covalent bonds by sharing its four valence electrons with four univalent atoms, for example, hydrogen. After the formation of four bonds, carbon attains the electronic configuration of … .

A. helium

B. neon

C. argon

D. kryption

Answer: B

View Text Solution

27. Which of the following compounds does not belong to the homologous series ?

A. `CH_(4)`

B. `C_(2)H_(6)`

C. `C_(3)H_(6)`

D. `C_(4)H_(8)`

Answer: D

View Text Solution

28. The first member of alkyne homologous series is … .

A. ethyne

B. ethene

C. propyne

D. methane

Answer: A

View Text Solution

29. Which of the following represents saponification reaction ?

A. `CH_(3)COONa+NaOH overset(CaO)to CH_(4)+Na_(2)CO_(3)`

B. `CH_(3)COOH+C_(2)H_(5)OH overset(H_(2)SO+(4))toCH_(3)COOC_(2)H_(5)+H_(2)O`

C. `2CH_(3)COOH+2Na to2CH_(3)COONa+H_(2)`

D. `CH_(3)COOC_(2)H_(5)+NaOHto CH_(3)COONa+C_(2)H_(5)OH`

Answer: D

View Text Solution

30. The number of covalent bonds present in pentane is -

A. 5

B. 12

C. 16

D. 17

Answer: C

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OBJECTIVE QUESTIONS AND ANSWERS (Choose more than one correct options from those given below each queston)

1. Which of the following are not correct for carbon compounds ?

A. They are good conductors of electricity.

B. They are non-conductors of electricity.

C. They possess strong intemolecular attractive forces.

D. They possess weak intermolecular attractive forces.

Answer: B::D

View Text Solution

2. Which of the following are unsaturated compounds ?

A. Ethene, ethyne, propene, proyne

B. Ethyne, butyne, propanol, butanol

C. Ethene, propene, butene, pentene

D. Ethyne, propyne, butyne, pentyne

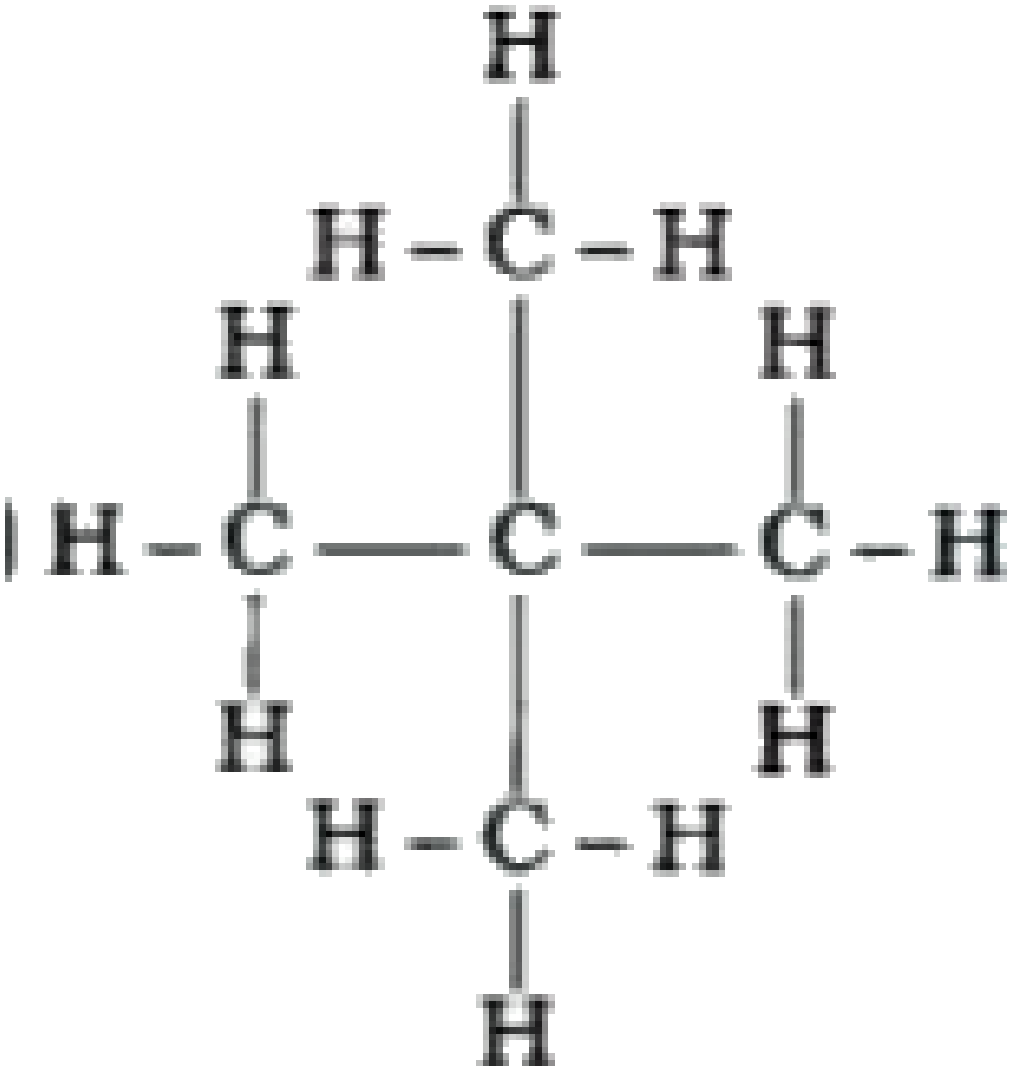
Answer: A::C::D

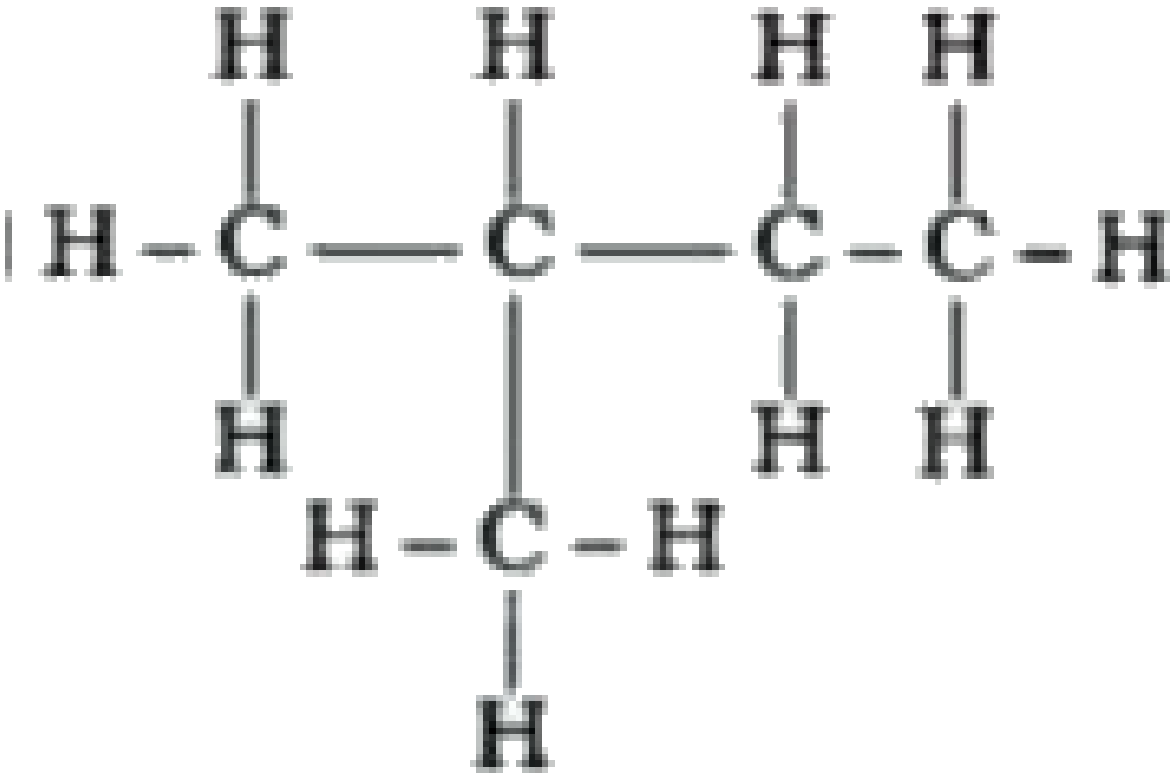
View Text Solution

3. Which of the following statements are correct for the given hydrocarbon compounds ?

(1) `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-

underset(H)underset(|)overset(H)overset(|)C-H`





A. Three hydrocarbon compounds can be represented by a general formula.

B. Three hydrocarbon compounds are isomers of each other.

C. Three hydrocarbon compounds are unsaturated hydrocarbons.

D. Chemical reactions of three hydrocarbon compounds are similar.

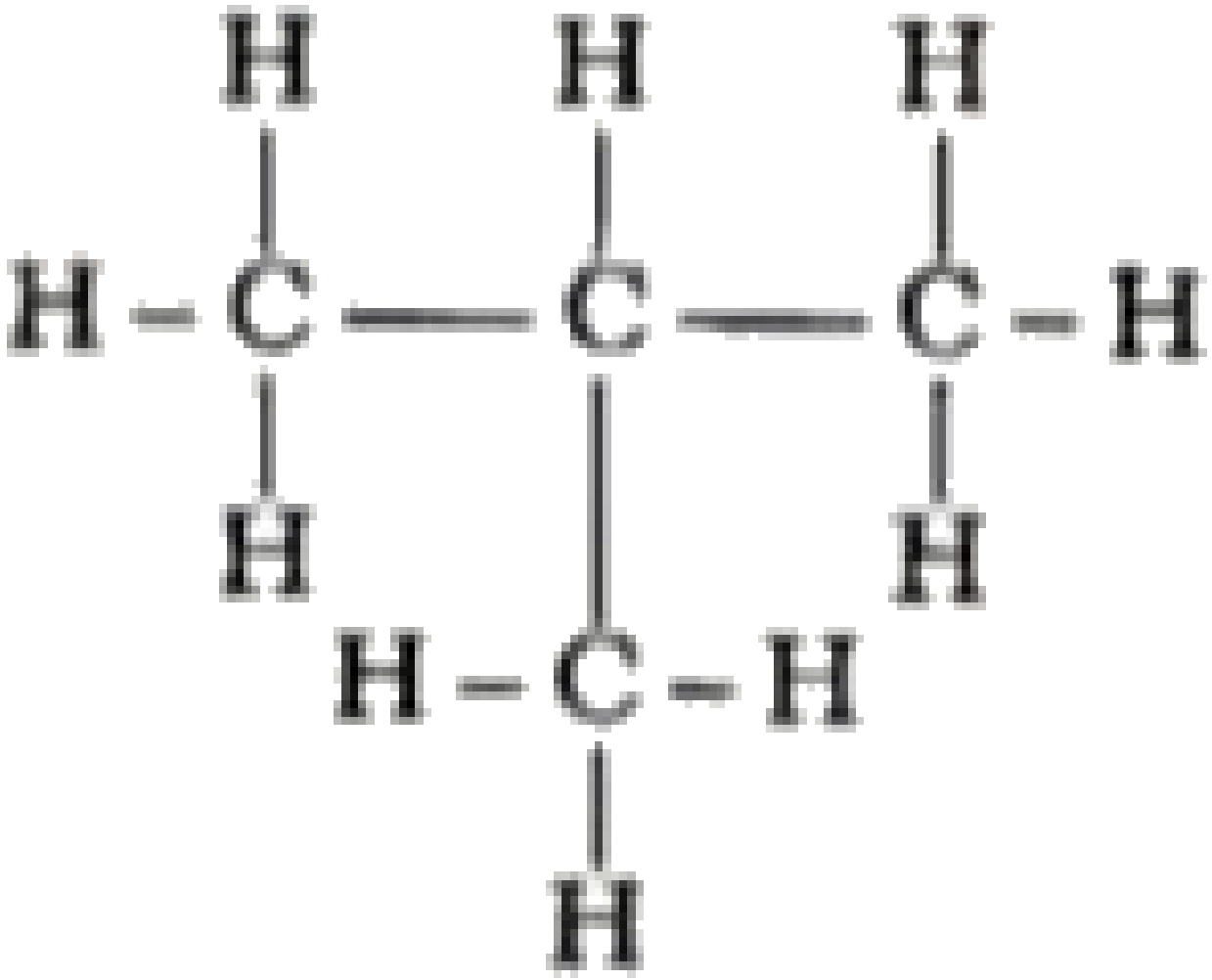
Answer: A::B::D

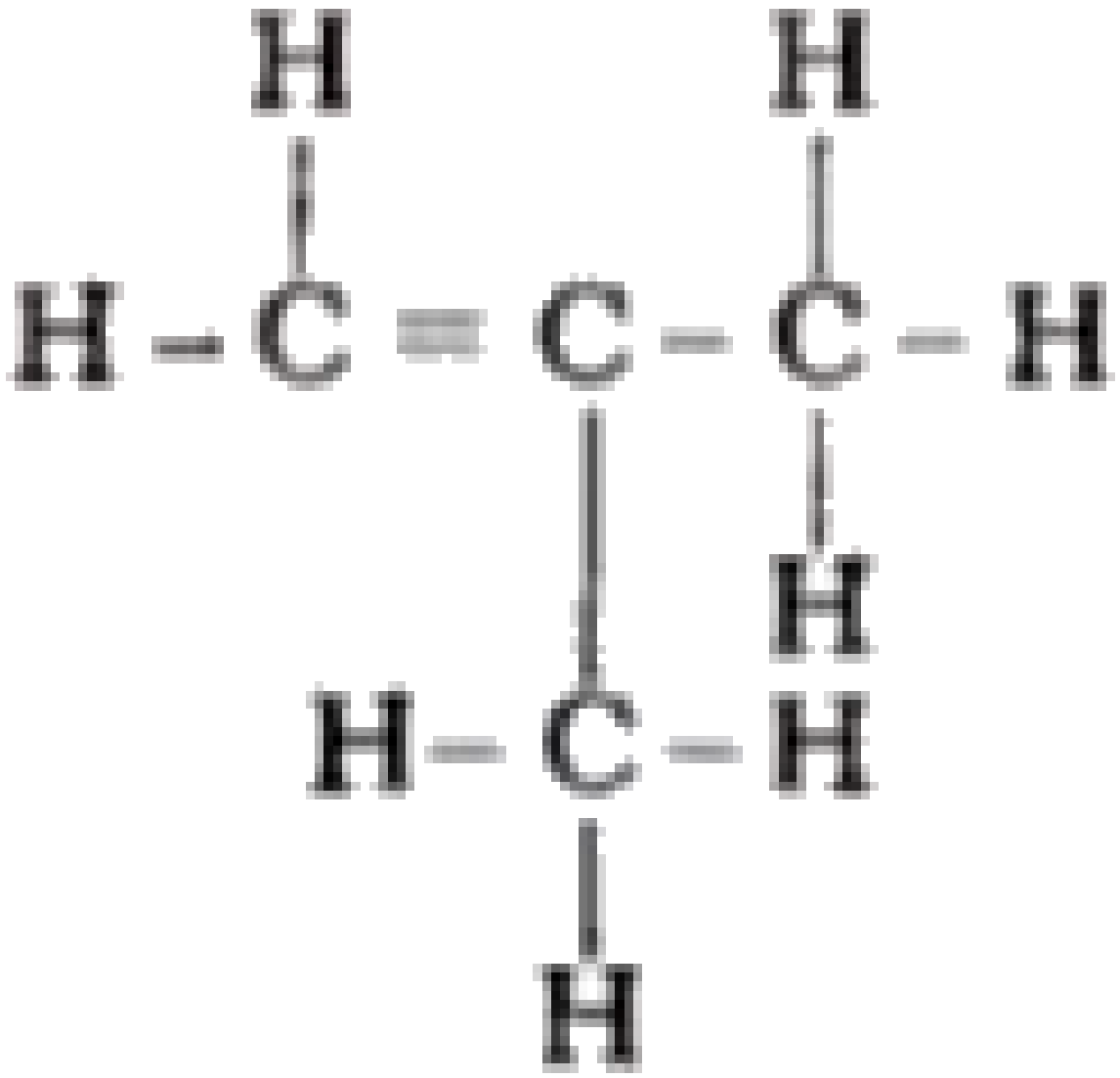
View Text Solution

4. Which of the following are isomers of butane ?

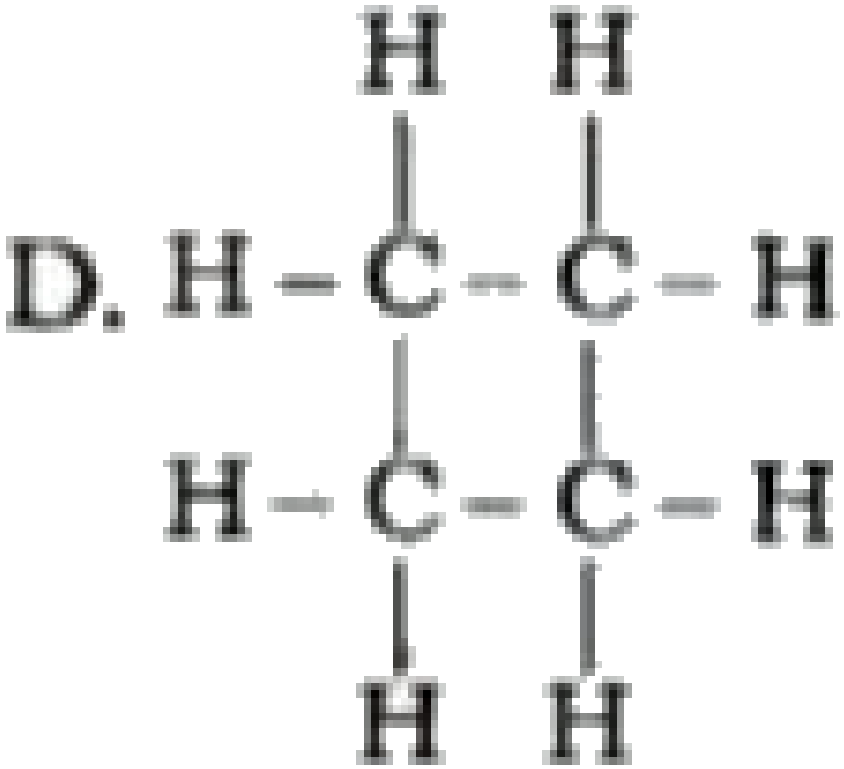
A. `H-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-H`

B.





C.

D. 

D.

Answer: A::B

View Text Solution

5. Which of the following reactions are correct ?

A. `underset("Propanol")(CH_(3)CH_(2)CH_(2)OH)overset("Alkaline "KMnO_(4))underset(+"Heat")tounderset("Acetic acid")(CH_(3)COOH)`

B. `R-C-=C-R+2H_(2)overset(Nickel)toR-underset(H)underset(|)overset(H)overset(|)C-underset(H)underset(|)overset(H)overset(|)C-R`

C. `underset("Ethane")(CH_(3)CH_(3))+Cl_(2)overset("Sunlight")tounderset("Ethyl chloride")(CH_(3)CH_(2)Cl+HCl)`

D. `underset("Acetic acid")(CH_(3)COOH)+underset("Ethanol")(CH_(3)CH_(2))OH overset("Acid")to underset("Ethyl acetate")(CH_(3)COOC_(2)H_(5)+H_(2)O)`

Answer: B::C::D

View Text Solution

OBJECTIVE QUESTIONS AND ANSWERS (In each of the following questions, two statements are given)

1. (A) A mixture of oxygen and ethyne is burnt for welding.

(R) Burning of the mixture releases a large amount of heat.

A. Both assertion (A) and reason (R) are true. And reason (R) is the true explanation of the assertion (A).

B. Both assertion (A) and reason (R) are true, but reason (R) is not the true explanation of the assertion (A).

C. Assertion (A) is true and reason (R) is false.

D. Both assertion (A) and reason (R) are false.

Answer: A

View Text Solution

2. (A) Acidified `K_(2)Cr_(2)O_(7)` is used in oxidation of ethanol.

(R) Acidic `K_(2)Cr_(2)O_(7)` is a reducing agent.

A. Both assertion (A) and reason (R) are true. And reason (R) is the true explanation of the assertion (A).

B. Both assertion (A) and reason (R) are true, but reason (R) is not the true explanation of the assertion (A).

C. Assertion (A) is true and reason (R) is false.

D. Both assertion (A) and reason (R) are false.

Answer: C

View Text Solution

3. (A) Animal fats should be chosen for cooking.

(R) Animal fats are not harmful for health.

A. Both assertion (A) and reason (R) are true. And reason (R) is the true explanation of the assertion (A).

B. Both assertion (A) and reason (R) are true, but reason (R) is not the true explanation of the assertion (A).

C. Assertion (A) is true and reason (R) is false.

D. Both assertion (A) and reason (R) are false.

Answer: D

View Text Solution

4. (A) Carbon could not form `C^(4-)` anion by gaining four electrons.

(R) It would be difficult for carbon atom with six protons in its nucleus to accommodate ten electrons.

A. Both assertion (A) and reason (R) are true. And reason (R) is the true explanation of the assertion (A).

B. Both assertion (A) and reason (R) are true, but reason (R) is not the true explanation of the assertion (A).

C. Assertion (A) is true and reason (R) is false.

D. Both assertion (A) and reason (R) are false.

Answer: A

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5. (A) `C_(2)H_(5)OH,C_(3)H_(7)OH` and `C_(4)H_(9)OH` are members of homologous series.

(R) These compounds do not have same functional group.

A. Both assertion (A) and reason (R) are true. And reason (R) is the true explanation of the assertion (A).

B. Both assertion (A) and reason (R) are true, but reason (R) is not the true explanation of the assertion (A).

C. Assertion (A) is true and reason (R) is false.

D. Both assertion (A) and reason (R) are false.

Answer: C

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Value Based Questions With Answers

1. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same. The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being blackened.

Why is the bottom of cooking utensils getting blackened ? Explain.

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2. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same. The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being

blackened.

Apart from blackening the utensils, state two other disadvantages in this condition.

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3. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same. The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being blackened.

What did Mudra find on checking the gas stove thoroughly which was causing this problem?

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4. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same.

The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being blackened.

What step was taken by Mudra to get rid of this problem?

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5. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same. The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being blackened.

What type of flame was produced by the gas stove burner after the required step was taken by Mudra's mother?

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6. One day Mudra was talking to her mother who was cooking vegetables in a stainless steel utensils. Mudra observed that the bottom of cooking utensils was getting blackened from outside. She showed this to her mother. The mother told Mudra that the bottoms of all the cooking utensils kept on the gas stove were getting blackened for the last few days and she had tough time cleaning these utensils. Being a science student of class X, Mudra checked the gas stove thoroughly and could understand the reason for this

problem. She explained everything to her mother. As Mudra was getting late for school, she asked her mother to take a particular step to stop the blackening of cooking utensils. Mudra's mother did the same. The mother was glad that the bottoms of cooking utensils kept on gas burner were no longer being blackened.

What values are shown by Mudra in this act?

View Text Solution

7. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she started the use of vegetable oil.

Write the physical states of vegetable ghee and vegetable oil.

View Text Solution

8. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she

started the use of vegetable oil.

How do vegetable oils and fats differ chemically?

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9. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she started the use of vegetable oil.

By which method, the vegetable oil is converted into vegetable ghee?

View Text Solution

10. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she started the use of vegetable oil.

Why is vegetable ghee not considered good for health ?

View Text Solution

11. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she started the use of vegetable oil.

Name the most common animal fat consumed by people.

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12. Yug studies in tenth standard. One day his science teacher was discussing about oils and fats in the class. During this discussion, Yug came to know many facts about oils and fats which he did not know earlier. When Yug came back home from school, he asked his mother about oil she used to prepare food for the family. His mother replied that she was using vegetable ghee for cooking food. Yug requested his mother not to use vegetable ghee because it is harmful for health. He asked her to use vegetable oil for cooking the food because vegetable oil is good for health. Yug's mother agreed to do the same, and she started the use of vegetable oil.

Why is vegetable oil better for health ?

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Practical Skill Based Questions With Answers

1. An organic compound 'A' is widely used to preserve the pickles and has a molecular formula `C_(2)H_(4)O_(2)`. This compound reacts with ethanol to form a sweet smelling compound 'B'.

Identify the compound 'A'.

View Text Solution

2. An organic compound 'A' is widely used to preserve the pickles and has a molecular formula `C_(2)H_(4)O_(2)`. This compound reacts with ethanol to form a sweet smelling compound 'B'.

Write the chemical equation for the reaction of 'A' with ethanol in the presence of acid.

View Text Solution

3. An organic compound 'A' is widely used to preserve the pickles and has a molecular formula `C_(2)H_(4)O_(2)`. This compound reacts with ethanol to form a sweet smelling compound 'B'.

Which gas is produced when compound 'A' reacts with washing soda ? Write the chemical equation.

View Text Solution

4. An organic compound 'A' is widely used to preserve the pickles and has a molecular formula `C_(2)H_(4)O_(2)`. This compound reacts with ethanol to form a sweet smelling compound 'B'.

How can we obtain compound 'A' from 'B' ?

View Text Solution

5. Identify the compounds A, B, C, D, E and F in the following reactions :

`CH_(3)CH_(2)OH overset(AtoCH_(3)COOH`

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6. Identify the compounds A, B, C, D, E and F in the following reactions :

`CH_(3)CH_(2)OH+CH_(3)COOH overset("Acid")toB+H_(2)O`

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7. Identify the compounds A, B, C, D, E and F in the following reactions :

`B+NaOH toC_(2)H_(5)OH+C`

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8. Identify the compounds A, B, C, D, E and F in the following reactions :

`D+Na_(2)CO_(3)toCH_(3)COONa+E+H_(2)O`

View Text Solution

9. Identify the compounds A, B, C, D, E and F in the following reactions :

`E+Ca(OH)_(2)to underset("precipitate")underset("White")(F)+H_(2)O`

View Text Solution

10. An organic compound P when heated with excess concentrated `H_(2)SO_(4)` at 443 K produced compound Q. The number of carbon atoms in P and Q are same. Compound Q when treated with hydrogen in presence of nickel or palladium formed compound R. One mole of 'R' when reacts with sufficient `O_(2)` given two moles of carbon dioxide and three moles of water. Identify the compounds P, Q and R. Write chmical equations for the reactions.

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