

**SREE VIDHYA HIGH SCHOOL, ERUTHENPATHY**

**S**TUDENT'S  
**T**TEAM TEACHING AND  
**E**EMPOWERMENT  
**P**PROGRAMME FOR  
**S**SCIENCE

**CHEMISTRY STUDY MATERIAL**

**COLLECTION OF VERY SHORT ANSWER  
QUESTIONS**

**2021 JANUARY**

## 1. PERIODIC TABLE AND ELECTRON CONFIGURATION

1. Maximum number of electrons accommodated in M Shell ?  
8, 18, 32, 50

**18**

2. What is the shape of P sub-shell ?  
Circle, dumb-bell, square, shapless

**dumb-bell**

3. Which sub-shell is common for all shells ?  
p, d, s, f

**s**

4. Maximum number of electrons contained in d sub-shell ?  
(10, 20, 12, 24)

**10**

5. Comparing 4s and 3d sub-shells, which sub-shell having more energy ?

**3d**

6. Founder of Modern periodic table ?  
(Mendaliyef, Mosley, Lothar Mayer, Newlands)

**Mosley**

7. How many "d" sub-shells are there in an atom ?  
(1, 3, 5, 14)

**5**

8. Select the correct characteristics of d-block element from the following ?

Shows different oxidation numbers  
Found non-metals in d-block elements  
Usually very small elements  
Forms coloured compounds

**Shows different oxidation numbers, Forms coloured compounds**

9. The structure of the outermost subshell electron configuration of an atom is  $3s^2 3p^5$ . Find out the period and group number of the element ?  
(5, 18 3, 17 2, 17, No one else)

**3,17**

10. What is the oxidation number of the manganese ion of the compound  $Mn_2O_3$  ?

(-2, +2, -3, +3)

**+3**

## 2.GAS LAWS AND MOLE CONCEPT

11. The molecules of gas are in a state of rapid random motion in all directions. As a result of the random motion of the gas molecules, they collide with each other. But there is no loss of energy due to this collisions . What is the reason ?

**Collisions are perfectly elastic in nature**

12. Energy of gas molecules are ----- is one of the important characteristics of gaseous substances.  
( Very low, Very high, )

**Very high**

13. ----- is the average kinetic energy of molecules in a substances.  
( Pressure, Attractive force, Temperature, None of these)

**Temperature**

14. The size of the air bubbles rising from the bottom of an aquarium increases. How can we explain the reason of this ?

**With the help of boyle's law**

15. The mathematical expression of Avogadro's Law is -----  
 $V \propto 1/p$  ( T constant )  
 $V \propto T$  ( P constant )  
 $V \propto n$  ( P, T constant )  
 None of these

**$V \propto n$  ( P, T constant )**

16. Calculate the No. of GAM in 84-g of Nitrogen ?  
( 5, 6, 2, 3 )

**6**

17. According to Boyle's Law, if P is the pressure and V is the volume, then ----- is a constant

(P/V, V/P, 1/p, PV )

**PV**

18. Calculate the Molecular mass of Ammonium Sulphate  $[(NH_4)_2SO_4]$  ?  
[Hint : H =1, N=14, S=32, O=16 ]

( 133, 134, 144, 132)

**132**

19. At constant temperature and pressure, the volume of a gas is directly proportional to the the number of molecules. This law is known as -----

**Avogadro's Law**

20. How many GMM and GAM contained in 96g of Oxygen (  $O_2$  ) ?

Hint : O=16

( 6,3 ; 12, 6 ; 6,12 ; 3, 6 )

**3,6**

21. What is the value of 'P' in Standard Temperature and Pressure ?

**1 atm**

22. According to Charle's Law, if T is the temperature in kelvin scale and V is the volume, then ----- is a constant.

( VT, PV, V/T, 1/V )

**V/T**

23. f the particle having the same size and mass, even though they are in crores, we can determine their accurate number on the basis of -----.

( number, volume, mass, molecules )

**mass**

24. One mole of any gas at STP is contains same number molecules and hence their volume will also be the same. This is called molar volume. The value of molar volume is -----

( 2.24 L, 224L, 22.4 L, 44.8 L )

**22.4 L**

25. 224 L of any gas at STP is ----- mole.

10

26. Analyse the situation given below and write the name of gas law associated with it.  
A balloon is being inflated.

(Boyle's, law Charle's law, Avogadro's law, Pascal's law)

**Avogadro's law**

27. Calculate the number molecules contained in 112 L of  $\text{NH}_3$  at STP ?

(  $5 \times 6.022 \times 10^{23}$ ,  $4 \times 6.022 \times 10^{23}$ ,  $3 \times 6.022 \times 10^{23}$ ,  $2 \times 6.022 \times 10^{23}$  )

**$5 \times 6.022 \times 10^{23}$**

28. One gram molecular mass of any substance contains ----- number of molecules.

( 1 GAM, 1GMM, Avogadro, None of these )

**Avogadro**

29. How many grams of Oxygen are required to get the same number of atoms as in one gram of Helium ?

( Hint : He = 4 , O=16 )

( 2g, 3g, 4g, 1g )

**4g**

### 3. REACTIVITY SERIES AND ELECTRO CHEMISTRY

30. Arrange the following metals on the basis of their reactivity into an ascending order. Fe, Pb, Ca, Zn, Mg, Cu

**$\text{Cu} < \text{Pb} < \text{Fe} < \text{Zn} < \text{Mg} < \text{Ca}$**

31. What is the reason of including Hydrogen in the reactivity series of metals ?

**For the sake of comparison of chemical reactivity**

32. Displacement reactions are ----- reactions  
(Oxidation, Reduction, Redox, reversible)

**Redox**

33.  $2\text{AgNO}_3 + \text{Cu} \rightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{Ag}$ . Which is reduction reaction taking place here.  
(a)  $\text{Cu} \rightarrow \text{Cu}^{2+} + 2e^-$  (b)  $\text{Ag}^+ + 1e^- \rightarrow \text{Ag}$

**(b)  $\text{Ag}^+ + 1e^- \rightarrow \text{Ag}$**

34. The electrode at which oxidation occurs is -----  
(Electrolyte, Anode, Cathode)

**Anode**

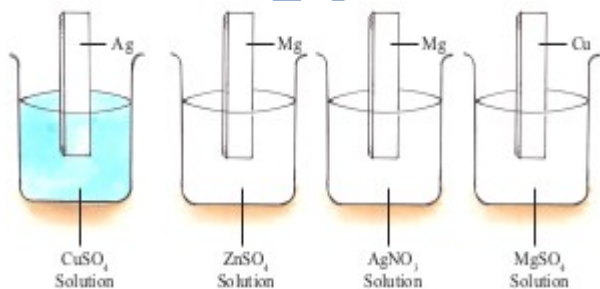
35. Which one is not an electrolyte in the substance given in the following ?  
( Acid, Alkali, Salt solutions, Pure water )

**Pure Water**

36. The anion of Nitric acid (  $\text{HNO}_3$  ) ?  
(  $\text{H}^+$ ,  $\text{O}^{2-}$ ,  $\text{NO}_3^-$ ,  $\text{H}^+$  )

**$\text{NO}_3^-$**

37



Observe the pictures given above. Based on the reactivity series, predict which among these undergo a displacement reaction.

(a) figure 1 & 3 (b) figure 2 & 3 (c) figure 3 & 4 (d) figure 1 & 4

**(b) figure 2 & 3**

38. What is the product obtained in the cathode while conducting the electrolysis of aqueous solution of Sodium Chloride ( NaCl) ?

( Cl<sub>2</sub>, Na, H<sub>2</sub>, O<sub>2</sub> )

**H<sub>2</sub>**

39. Metals such as copper, gold etc. are refined by ----- method.

**Electrolysis**

40. In the process of electroplating copper on iron bangle, ----- must be used as anode.

**Cu**

41. If chromium is electroplating on iron handle bars, ----- is chosen as electrolyte.

**Chromic acid**

42. Who gave scientific explanation for electrolysis for the first time ?

(Michael Faraday, Humphrey Davy, Heinrich Hertz, saac Newton)

**Michael Faraday**

43. How many Galvanic cells can be made by using the metals given below.  
Ag, Cu, Zn and Mg

( 4,3,5,6)

**5**

44. Which reaction is taking place in Galvanic cells ?

**Redox reaction**

45. Which is the main part of a Galvanic Cell that helps it to maintain the continuous flow of electric current ?

**Salt bridge**

46. During Electroplating, a suitable salt solution of the metal which is used for covering is used as electrolyte.

Complete the table.

| Metals to be covered | Electrolyte             |
|----------------------|-------------------------|
| Ag                   | Silver Nitrate solution |
| Au                   | -----                   |

### Double cyanide of sodium and gold

47. We know that electron flow in a Galvanic cell is from anode to cathode. But in the salt bridge, which flow can be take place?  
(Flow of electrons , flow of ions, flow of positive charge, none of these)

### Flow of ions

48. Thin coating of metal is helpful for preventing metallic corrosion and improving the appearance of the metal. This can be done by -----.

### Electroplating.

49.  $\text{H}_3\text{PO}_4 \rightarrow \text{-----} + (\text{PO}_4)^{3-}$   
(  $2\text{H}^+$ ,  $\text{H}^+$ ,  $3\text{H}^+$ ,  $\text{H}_3\text{O}^+$  )

### $3\text{H}^+$

## 4. PRODUCTION OF METALS

50. Calamine is an ore. Select it's Molecular formula from the bracket given below ?  
(  $\text{Na}_2\text{CO}_3$ ,  $\text{K}_2\text{CO}_3$ ,  $\text{ZnCO}_3$ ,  $\text{CaCO}_3$  )

### $\text{ZnCO}_3$

51. Which metals have sulphide ores ?

### Copper, Zinc

52. Which one is an ore of Aluminium among the following minerals ?  
(  $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ ,  $\text{Na}_3\text{AlF}_6$ ,  $\text{Al}(\text{OH})_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{AlCl}_3$  )

### $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$

53. The process of removing the impurities ( gangue ) from the ore obtained from the earth's crust is called -----

### Concentration of the ore



54. Which method is not a concentration of the ore among the following ?  
( Levigation, Leaching, Froth floatation, Calcination )

**Calcination**

55. What is the method of concentration of the ore of gold ?

**Hydraulic washing**

56. The process of heating the concentrated ore in a current of air at a temperature below its melting point is called -----

**Roasting.**

57. What are the two stages used in the extraction of metals from concentrated ore ?

**Conversion of concentrated ore into it's oxide  
Reduction of the oxide.**

58. Select from the following method that which is not used for refining of metals ?

( Liquefaction, Distillation, Calcination, Electrolysis )

**Calcination**

59. The Alumina obtained by concentration of bauxite is mixed with molten cryolite and subjected to electrolysis. What is the reason.

To reduce it's melting point  
To increase its' boiling point  
To reduce the consumption of electricity  
To reduce it's electrical conductivity  
To increase it's electrical conductivity

**To reduce it's melting point  
To increase it's electrical conductivity**

60. Even though Nichrome and Stainless steel contain the same components they possess different properties. Find out the reason.

**Varying the proportion of constituent elements**

61. What are the factors to be considered while selecting minerals for the extraction of metals ?

Less impurities  
Less abundance  
Less metal content  
Easily and cheaply separable  
Less impurities

Very rare

**Easily and cheaply separable, Less impurities**

### 5. COMPOUNDS OF NON METALS

62. Why is ammonia passed through quick lime ( CaO ) ?

**To remove moisture present in it**

63. A highly concentrated aqueous solution of Ammonia is called -----

**Liquor ammonia**

64. Industrial production of Ammonia is done by ----- process

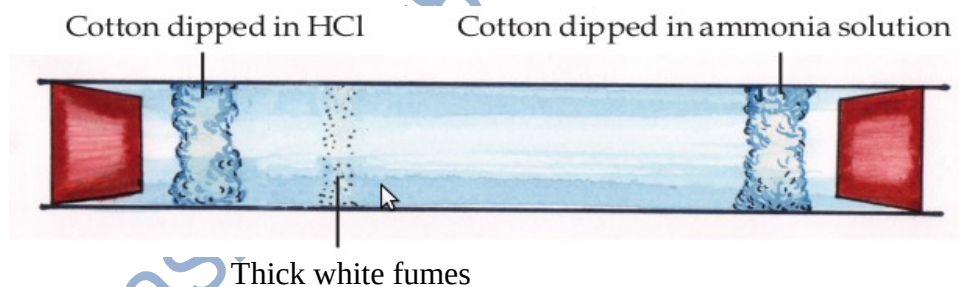
**Haber process.**

65. Identify liquor ammonia from the molecular formula of substances given in brackets.

(  $\text{NH}_4\text{Cl}$ ,  $\text{NH}_4\text{OH}$ ,  $(\text{NH}_4)_2\text{SO}_4$ ,  $\text{AlCl}_3$  )

**$\text{NH}_4\text{OH}$**

66. The thick white fumes formed in the glass tube due to the formation of -----.



**$\text{NH}_4\text{Cl}$**

67. The rate of forward reaction becomes equal to the rate of the backward reaction in a reversible chemical reaction is called -----

( Chemical equilibrium, Dynamic equilibrium, closed system )

**Chemical equilibrium**

68. Identify which statement is not a characteristic of an equilibrium state among the following ?

At the equilibrium both the reactants and the products coexist.

Chemical equilibrium is dynamic at the molecular level

Chemical equilibrium is not attained in closed systems.

At equilibrium, the rate of forward reaction is equal to the backward reaction.

**Chemical equilibrium is not attained in closed systems.**

- 69.

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$  If you want to increase the rate of forward reaction of the given system, what has to be done in the concentration of equilibrium ?

Increases the concentration of  $N_2$

Removed  $N_2$

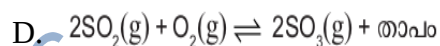
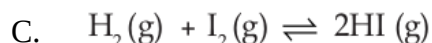
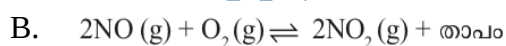
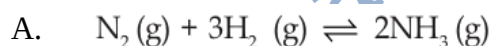
Removed  $H_2$

More Ammonia is added

Ammonia removed

**Increases the concentration of  $N_2$ , Ammonia removed**

70. In which reversible reaction given in the following, pressure will not have any effect on the equilibrium ?



**C**

71. What is the optimum temperature in the industrial production of  $NH_3$  ?

(  $450^\circ\text{C}$ ,  $500^\circ\text{C}$ ,  $400^\circ\text{C}$ , Room temperature )

**$450^\circ\text{C}$**

72. The minimum value of kinetic energy required for reactant molecule to participate in the chemical reaction is called -----.

**Threshold energy**

73. What is the influence of decreasing pressure in the given closed system ?



**Back ward reaction increases or ammonia decomposes**

74. In which condition given in the following, Ammonia is not formed in Haber process?

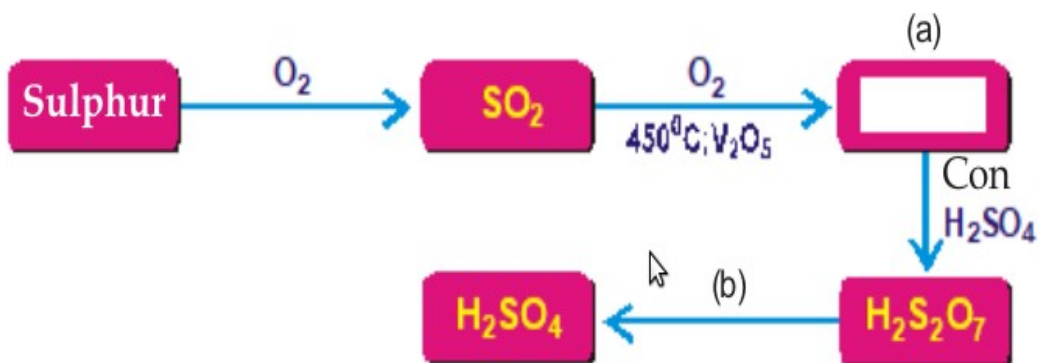
(Temperature decreases, Pressure increases, Concentration of  $NH_3$  decreases, increases concentration of reactants, Removing reactants)

**Removing reactants**

75. Sulphuric Acid produced by dissolving ----- in water

**Oleum**

76. The flow chart of contact process is given below. Complete the flow chart ?



(a)  $SO_3$  (b)  $H_2O$

77. Select an example of dehydrating property of  $H_2SO_4$  given in the following examples ?

- Used in the preparation of  $Cl_2$
- Reaction with metals
- Dropping Con.  $H_2SO_4$  on cotton cloth
- Reaction with non metals

**Dropping Con.  $H_2SO_4$  on cotton cloth**

78.  $\text{SO}_3 + \text{H}_2\text{SO}_4 \rightarrow \underline{\text{H}_2\text{S}_2\text{O}_7}$  What is the name of the product underlined?

**Oleum**

79. What is the function of a catalyst in a reversible reaction?

**Increases the rate of both the forward and backward reaction.**

### 6. NOMENCLATURE OF ORGANIC COMPOUNDS AND ISOMERISM

80. Hydrocarbons having double bond or triple bond between any two carbon atoms are commonly known as -----

**Unsaturated hydrocarbons**

81. Hydrocarbons having a triple bond between any two carbon atoms are considered as -----

( Alkynes, Alkenes, Alkanes)

**Alkynes**

82. What is the general formula of Alkynes? Select the correct one.

(  $\text{C}_n\text{H}_{2n}$ ,  $\text{C}_n\text{H}_{2n+2}$ ,  $\text{C}_n\text{H}_{2n-2}$  )

**$\text{C}_n\text{H}_{2n-2}$**

83. Select the odd one out?

(  $\text{C}_3\text{H}_8$ ,  $\text{C}_5\text{H}_{12}$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_7\text{H}_{12}$ ,  $\text{C}_4\text{H}_{10}$  )

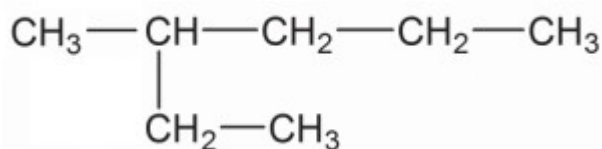
**$\text{C}_7\text{H}_{12}$**

84. Select the unsaturated hydrocarbons from the following?

(  $\text{C}_2\text{H}_6$ ,  $\text{C}_4\text{H}_6$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_5\text{H}_{12}$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_6\text{H}_{14}$  )

**$\text{C}_4\text{H}_6, \text{C}_2\text{H}_4$**

85.

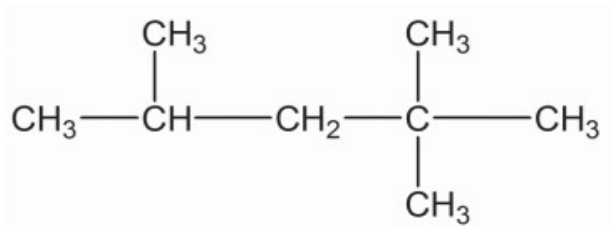


What is the IUPAC name of the given hydrocarbon?

( 2-Ethyl Pentane, 4-Ethyl Pentane, 3-Methyl Hexane )

**3-Methyl Hexane**

86.



What is the UPAC name of the given hydrocarbon ?

(2,4,4 Trimethyl pentane, 2,2,4 Trimethyl pentane, Trimethyl pentane )

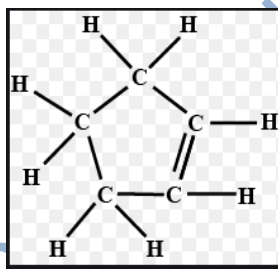
**2,2,4 Trimethyl pentane**

87. What is the structure of Pent-2-ene ?

(  $\text{CH}_2=\text{CH}-\text{CH}_2-\text{CH}_2-\text{CH}_3$ ,  $\text{CH}_3-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}_3$ ,  $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}=\text{CH}_2$ ,  $\text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_3$  )

**$\text{CH}_3-\text{CH}=\text{CH}-\text{CH}_2-\text{CH}_3$ ,  $\text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}-\text{CH}_3$**

88. What is the UPAC name of this hydrocarbon ?



Cyclopentane  
Cyclopentene

**Cyclopentene**

89. Molecular formula of some hydrocarbons are given below. Find out Saturated Alicyclic hydrocarbons from it ?

(  $\text{C}_3\text{H}_8$ ,  $\text{C}_3\text{H}_6$ ,  $\text{C}_4\text{H}_{10}$ ,  $\text{C}_4\text{H}_8$  )

**$\text{C}_3\text{H}_6, \text{C}_4\text{H}_8$**

90. Which functional group present in ethers ?

(  $-\text{OH}$ ,  $-\text{COOH}$ ,  $-\text{O}-\text{R}$ ,  $-\text{Cl}$  )

**$-\text{O}-\text{R}$**

91.  $\text{CH}_3-\text{CH}_2-\text{O}-\text{CH}_3$  UPAC name of this compound is -----

( Ethoxymethane, Methoxyethane )

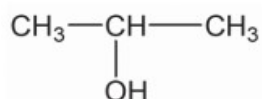
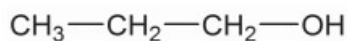
**Methoxyethane**

92.  $\text{CH}_3\text{-O-CH}_3$ ,  $\text{CH}_3\text{-CH}_2\text{-OH}$  are having same molecular formula ie;  $\text{C}_2\text{H}_6\text{O}$ . Which isomerism do they belongs to ?

( Chain isomerism, Position isomerism, Functional isomerism)

**Functional isomerism**

93.

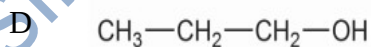
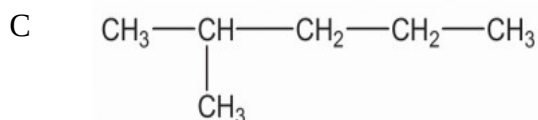
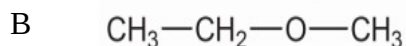


Find the isomerism between these two compounds ?

( Functional, Position )

**Position**

94.



Find the possible isomer pairs from the given compounds and name isomerism which the isomers belongs to ?

**A,C - Chain isomerism**

**B,D - Functional isomerism**

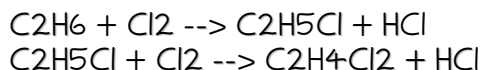
95. Find out an example of aromatic hydrocarbon from the given organic compounds ?

(  $\text{C}_6\text{H}_{14}$ ,  $\text{C}_6\text{H}_{12}$ ,  $\text{C}_6\text{H}_6$ ,  $\text{C}_6\text{H}_{10}$  )

**$\text{C}_6\text{H}_6$**

7. CHEMICAL REACTIONS OF ORGANIC COMPOUNDS

96. Two stages of the substitution reaction of ethane is given below. Complete the F F T H stage of the reaction ?



97. Addition reaction is not possible in saturated hydrocarbons. Give reason ?

The valency of carbon atom completely filled by hydrogen atoms

98. identify the following chemical reaction ?  
 $2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$

( Polymerisation, Addition, Substitution, Combustion )

Combustion

99.  $\text{CH}_3\text{-CH}_2\text{-CH}_3 \rightarrow \text{CH}_2=\text{CH}_2 + \text{CH}_4$ . identify this chemical reaction ?

( Polymerisation, Thermal cracking, Substitution, Combustion )

Thermal cracking

100. The monomer of teflon is -----

( Ethene, Tetrachloroethene, soprene, Tetrafluoroethene )

Tetrafluoroethene

101. What is the name of the family of hydrocarbons containing hydroxyl functional group ?

( Acids, Alkenes, Alcohols, Ethers )

Alcohols

102. The alcohol used in sanitizer is -----.

( Ethanol, Methanol, Propanol, Propan-2-ol )

Propan-2-ol

103. Which of the given molecules can form polymers ?

( Butane, Propane, Propene, Methane, Butene )

Propene, Butene



104. identify the ester from the structural formula of the compounds given below.

CH<sub>3</sub>-CH<sub>2</sub>-COOH, CH<sub>3</sub>-CH<sub>2</sub>-COO-CH<sub>3</sub>, CH<sub>3</sub>-CH<sub>2</sub>-CO-CH<sub>3</sub>, CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OH

CH<sub>3</sub>-CH<sub>2</sub>-COO-CH<sub>3</sub>

105. Chloroform, Carbontetrachloride can be formed by ----- reaction of methane.

Substitution reaction.



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