

# Step Academy official

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STUDENT NAME	
PAPER CODE	62240
TIME ALLOWED	
Paper Date	



CLASS	10th
SUBJECT	Chemistry
TOTAL MARKS	
Paper Type	

Choose the correct answer.

1. Which of the following does not happen, when a system is at equilibrium state?

(A) Forward and reverse reactions stop      (B) Forward and reverse rates become equal      (C) Concentration of reactants and products stop changing      (D) Reaction continues to occur in both the directions.

2. For a reversible reaction  $K_c = \frac{[C]^2}{[A][B]}$  Which substance is product of the reaction?

(A) A      (B) B      (C) Both a and b      (D) C

3. Which of the following reaction will not have any units of  $K_c$ ?

(A)  $H_2(g) + CO_2(g) \rightleftharpoons H_2O(g) + CO(g)$       (B)  $N_2(g) + O_2 \rightleftharpoons 2NO(g)$       (C)  $2A(g) + B(g) \rightleftharpoons 3AC(g)$       (D) All of these

4. Concentration of reactants and products at equilibrium remains unchanged if:

(A) concentration of any reactant or product is not changed      (B) temperature of the reaction is not changed      (C) pressure or volume of the system is not changed.      (D) all of the above are observed

5. What are the units for  $N_2(g) + O_2(g) \rightleftharpoons 2NO_2(g)$

(A)  $\text{mol} \cdot \text{dm}^{-3}$       (B)  $\text{mol}^2 \cdot \text{dm}^6$       (C)  $\text{dm}^3 \cdot \text{mol}^{-1}$       (D) No units

6. For which reactions,  $K_c$  has units of  $\text{mol} \cdot \text{dm}^{-3}$ .

(A)  $2NO_2(g) \rightleftharpoons N_2O_4(g)$       (B)  $2NO_2(g) \rightleftharpoons N_2O_4(g)$       (C)  $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_5(g)$       (D)  $2ICl(g) \rightleftharpoons I_2(g) + Cl_2(g)$

7. Active mass means:

(A) total mass of reactants      (B) total mass of products      (C) total mass of reactants and products      (D) mass of substance in moles per  $\text{dm}^3$  in a dilute solution

8.

Which is true about the equilibrium state?

<b>(A)</b> The forward reaction stops.	<b>(B)</b> The reverse reaction stops.	<b>(C)</b> Both forward and reverse reactions stops.	<b>(D)</b> Both forward and reverse reactions continue at the same rate.
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9. In an irreversible reaction equilibrium is:

<b>(A)</b> established quickly	<b>(B)</b> established slowly	<b>(C)</b> never established	<b>(D)</b> established when reaction stops
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10.

When a mixture of H<sub>2</sub> and I<sub>2</sub> is sealed in a flask and temperature is kept at 25°C, following equilibrium is established.



<b>(A)</b> H <sub>2</sub> and I <sub>2</sub>	<b>(B)</b> HI only	<b>(C)</b> H <sub>2</sub> only	<b>(D)</b> H <sub>2</sub> , I <sub>2</sub> and HI
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11.

Milk of magnesia contains Mg(OH)<sub>2</sub>. It is used as antacid. It neutralizes excess stomach acid. Which salt is formed in this reaction?

<b>(A)</b> MgSO <sub>4</sub>	<b>(B)</b> MgCO <sub>3</sub>	<b>(C)</b> MgCl <sub>2</sub>	<b>(D)</b> MgO
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12. NH<sub>3</sub> cannot be classified as a base by:

<b>(A)</b> Lewis theory	<b>(B)</b> Bronsted-Lowry theory	<b>(C)</b> Arrhenius theory	<b>(D)</b> All of these theories
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13. Consider the following reaction? H<sub>2</sub>O + HCl  $\rightleftharpoons$  H<sub>3</sub>O<sup>+</sup> + Cl<sup>-</sup>

Which species is an electron pair acceptor in this reaction?

<b>(A)</b> H <sup>2</sup> O	<b>(B)</b> HCl	<b>(C)</b> H <sup>3</sup> O <sup>+</sup>	<b>(D)</b> None
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14. A drain cleaner solution contains  $1.0 \times 10^{-8}$  M, OH concentration. This solution is:

<b>(A)</b> acidic	<b>(B)</b> basic	<b>(C)</b> neutral	<b>(D)</b> cannot be predicted
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15. Which of the following is a Lewis base?

<b>(A)</b> BF <sub>3</sub>	<b>(B)</b> HCl	<b>(C)</b> AlCl <sub>3</sub>	<b>(D)</b> F
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16. Which of the following is a Lewis base?

<b>(A)</b> BF <sub>3</sub>	<b>(B)</b> HCl	<b>(C)</b> AlCl <sub>3</sub>	<b>(D)</b> F
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17.

An aqueous solution of NaOH is used as a drain cleaner. If the concentration of OH<sup>-</sup> ions in this solution is  $1.0 \times 10^{-5}$  M, the concentration of H<sup>+</sup> ions in it would be?

(A)  $1.0 \times 10^{-5}$  M      (B)  $1.0 \times 10^{-7}$  M      (C)  $1.0 \times 10^{-9}$  M      (D)  $1.0 \times 10^{-14}$  M

18. In the following reaction which species is donating an electron pair?  $\text{NH}_3 + \text{BF}_3 \rightarrow \text{H}_3\text{N} - \text{BF}_3$

(A) H      (B) B      (C) N      (D) BF<sub>3</sub>

19. Choose Lewis acid:

(A) CN      (B)  $\ddot{\text{N}}\text{H}_3$       (C) H<sub>2</sub>O      (D) H<sup>+</sup>

20. Which of the following cannot be classified as Arrhenius acid?

(A) HNO<sub>3</sub>      (B) H<sub>2</sub>CO<sub>3</sub>      (C) CO<sub>2</sub>      (D) H<sub>2</sub>SO<sub>4</sub>

21. Ammonia is a base, because it:

(A) Ionizes in water to OH<sup>-</sup>      (B) Contains OH group      (C) Can accept an electron pair      (D) Can accept proton

22. Which of the following is an alcohol?

(A) CH<sub>3</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>3</sub>      (B) CH<sub>3</sub>-CH<sub>2</sub>-COOH      (C) C<sub>6</sub>H<sub>5</sub>-OH      (D) CH<sub>3</sub>-CH<sub>2</sub>-OH

23. Which compound is not a saturated hydrocarbon?

(A) CH<sub>3</sub>-CH<sub>3</sub>      (B) CH<sub>4</sub>      (C) CH<sub>3</sub>-CH=CH<sub>2</sub>      (D) CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>3</sub>

24. Stem "But" stands for how many Carbon atoms.

(A) 2      (B) 3      (C) 4      (D) 5

25. Formic acid contains functional group:

(A) -OH      (B) -CO-      (C) -COOH      (D) -CHO

26. CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>3</sub> is the chemical formula for:

(A) Ethane      (B) Propane      (C) Butane      (D) Pentane

27. In which of the following compounds, oxygen is attached to two alkyl carbon atoms?

(A) alcohol      (B) phenol      (C) ether      (D) ester

28. The functional group of amines is:

(A) -OH      (B) -COOH      (C) -NH<sub>2</sub>      (D) -CHO

29. Pitch is produced by:

(A) Coal

(B) Coal tar

(C) Coal gas

(D)

Petroleum

30. Condensed structural formula for butane is:

(A)  $\text{CH}_3 - \text{CH}_2 - \text{CH}_3$

(B)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$

(C)  $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$

(D)  $\text{CH}_3\text{CH}_3$

31. The functional group is found in:

(A) alcohols

(B) Ketones

(C) Carboxylic acids

(D) esters

32. Ethene and ethyne can be differentiated by:

(A) Hydrogenation

(B) Bromine water

(C) Strong alkaline aqueous solution of  $\text{KMnO}_4$

(D) Hydrohalogenation

33. By dehydration we mean, the removal of:

(A) Hydrogen

(B) Water

(C) Halogen

(D) Hydrogen halide

34. Which process produces an alkane?

(A) Combustion

(B) Hydration

(C) Dehydration

(D) Hydrogenation

35. Which substance reacts with  $\text{KMnO}_4$  to produce oxalic acid?

(A) Ethane

(B) Ethene

(C) Ethyne

(D) Ethyl alcohol

36. Which is used for dehydrohalogenation?

(A)  $\text{Br}_2$  water

(B) Conc.  $\text{H}_2\text{SO}_4$

(C)  $\text{Al}_2\text{O}_3$

(D)  
Alcoholic KOH

37. Which reacts explosively with methane?

(A)  $\text{F}_2$

(B)  $\text{Cl}_2$

(C)  $\text{Br}_2$

(D)  $\text{I}_2$

38. Which molecule contains a carbon-carbon double bond?

(A) Ethane

(B) Ethene

(C) Ethyne

(D) Ethyl alcohol

39. The reduction of alkyl halides takes place in the presence of:

(A)  $\text{Al}_2\text{O}_3$  at  $350^\circ\text{C}$

(B) Conc.  $\text{H}_2\text{SO}_4$  at  $170^\circ\text{C}$

(C)  $\text{Zn} + \text{Dust}$

(D)  $\text{Zn} + \text{HCl}$

40.

**Step Academy**

By dehydration we mean, the removal of:

(A) Hydrogen      (B) Water      (C) Halogen      (D) Hydrogen halide

41. Ethene and ethyne can be differentiated by:

(A) Hydrogenation      (B) Bromine water      (C) Strong alkaline aqueous solution of  $\text{KMnO}_4$       (D) Hydrohalogenation

42. Soaps and detergents are made from:

(A) proteins      (B) carbohydrates      (C) fats and oils      (D) all of these

43. Glucose is a:

(A) tetrose      (B) pentose      (C) disaccharide      (D) hexose

44. Which is not a protein?

(A) gelation      (B) antibodies      (C) enzymes      (D) cholesterol

45. Which is not a source of starch?

(A) wheat      (B) rice      (C) cotton      (D) potato

46. Which is not a dextrose sugar:

(A) glucose      (B) mannose      (C) galactose      (D) fructose

47. Plants convert glucose into:

(A) starch      (B) lipids      (C) proteins      (D) amino acids

48. Raffinose  $\text{C}_{18}\text{H}_{32}\text{O}_{16}$  is a:

(A) monosaccharide      (B) disaccharide      (C) oligosaccharide      (D) polysaccharide

49. Which is not present in DNA.

(A) deoxyribose sugar      (B) ribose sugar      (C) phosphate unit      (D) nitrogen base

50. Raffinose,  $\text{C}_{18}\text{H}_{32}\text{O}_{16}$  on hydrolysis forms \_\_\_\_\_ simple sugars.

(A) 1      (B) 2      (C) 3      (D) 3 to 9

51. Which compound found in every living cell, serves as the information and control center?

(A) amino acid      (B) protein      (C) lipid      (D) DNA

52. The ozone layer is found in.

(A) The troposphere      (B) The mesosphere      (C) The thermosphere      (D) The stratosphere

53. Which is/are responsible for acid rain?

(A)  $\text{SO}_2$

(B)  $\text{NO}_2$

(C) Both  $\text{NO}_2$  and  $\text{SO}_2$

(D)  $\text{O}_3$

54. Which layer is closest to the Earth?

(A) The stratosphere

(B) The troposphere

(C) The mesosphere

(D) The thermosphere

55. Which gas has highest percentage in the air:

(A)  $\text{O}_2$

(B)  $\text{CO}_2$

(C)  $\text{N}_2$

(D)  $\text{O}_3$

56. Stratosphere extends up to:

(A) 12 km

(B) 15 km

(C) 50 km

(D) 80 km

57. Troposphere extends up to:

(A) 50 km

(B) 12 km

(C) 18 km

(D) 80 km

58. Which is reddish brown gas?

(A)  $\text{NO}$

(B)  $\text{NO}_2$

(C)  $\text{SO}_2$

(D)  $\text{O}_3$

59. Lowest temperature in stratosphere is:

(A)  $-5^{\circ}\text{C}$

(B)  $-55^{\circ}\text{C}$

(C)  $5^{\circ}\text{C}$

(D)  $55^{\circ}\text{C}$

60. The outermost layer of earth atmosphere is:

(A) The mesosphere

(B) The stratosphere

(C) The troposphere

(D) The thermosphere

61. Most air pollution is caused by:

(A) Ozone

(B) Acid rain

(C) Carbon monoxide

(D) The burning of fossil fuels

62. Which is used to remove permanent hardness in water?

(A) slaked lime

(B) washing soda

(C) boiling water

(D) all of these

63. The density of water is maximum at:

(A)  $0^{\circ}\text{C}$

(B)  $4^{\circ}\text{C}$

(C)  $100^{\circ}\text{C}$

(D)  $-4^{\circ}\text{C}$

64. Heating calcium hydrogen carbonate produces.

(A)  $\text{CO}_2$

(B)  $\text{H}_2\text{O}$

(C)  $\text{CaCO}_3$

(D) All of these

65. Which salt causes temporary hardness in water?

(A) magnesium sulphate (B) calcium sulphate

(C) both calcium sulphate and magnesium sulphate

(D) magnesium hydrogen carbonate

66. Which of the following is not a water born disease?

(A) hepatitis

(B) typhoid

(C) dysentery

(D) anemia

67. Percentage of sodium chloride in sea water is:

(A) 0.02

(B) 3.4

(C) 97

(D) 2

68. Which human activity results in contamination of water bodies?

(A) livestock waste

(B) pesticides

(C) septic tanks

(D) all of these

69. Which human activity results in contamination of water bodies?

(A) livestock waste

(B) pesticides

(C) septic tanks

(D) all of these

70. Which salt does not cause the water to become hard?

(A) calcium hydrogen carbonate

(B) magnesium hydrogen carbonate

(C) magnesium sulphate (D) sodium chloride

71. Which of the following is not a raw material for the manufacture of soda ash.

(A) ammonia

(B) carbon monoxide

(C) brine

(D) lime stone

72.

The separation of minerals from gangue is called concentration. Which of the following methods is used for concentration?

(A) smelting

(B) roasting

(C) refining

(D) floatation

73.

Calcination is the process in which sodium hydrogen carbonate is heated to get sodium carbonate. Which is not obtained in this process?

(A)  $\text{CO}_2$

(B) CO

(C)  $\text{Na}_2\text{CO}_3$

(D)  $\text{H}_2\text{O}$

74. Percentage of nitrogen in urea is:

(A) 35

(B) 21.2

(C) 80

(D) 46.6

75. In electrolytic refining of copper, \_\_\_\_\_ is used as anode.

(A) pure copper

(B) impure copper

(C) copper sulphate

(D) electrolytic tank

76. Chemical formula of slaked lime is:

(A)  $\text{CaCO}_3$

(B) CaO

(C)  $\text{Ca}(\text{OH})_2$

(D)  $\text{CaCl}_2$

77. Which of the following steps is not used in the extraction process of metals:

(A) roasting

(B) smelting

(C) floatation

(D) bessemerization

78. What happens when ammonium carbamate is distilled with steam?

(A) ammonia is produced (B) carbon dioxide is released

(C) urea is produced

(D) urea solution is produced

79.

A mixture of  $\text{Cu}_2\text{S}$  and  $\text{FeS}$  called matte is produced in one of the metallurgical operations in the extraction of copper. The name of this operation is.

(A) smelting (B) roasting (C) bessemerization (D) electro-refining

80. The naturally occurring metallic compounds are called as:

(A) ore (B) gangue (C) mineral (D) rock

**Write short answers of the following questions.**

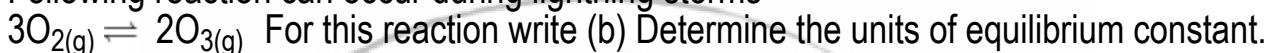
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1 . Differentiate between forward and reverse reactions.

2 . State conditions for equilibrium.

3 . What is the importance of equilibrium constant for a chemical reaction?

4 . Following reaction can occur during lightning storms



5 .

Coal reacts with hot steam to form  $\text{CO}$  and  $\text{H}_2$ . These substances react further in the presence of a catalyst to give methane and water vapour.  $\text{CO}_{(\text{g})} + 3\text{H}_{2(\text{g})} \rightarrow \text{CH}_{4(\text{g})} + \text{H}_2\text{O}_{(\text{g})}$

(a) Write forward and reverse reactions for it.

6 .

Coal reacts with hot steam to form  $\text{CO}$  and  $\text{H}_2$ . These substances react further in the presence of a catalyst to give methane and water vapour.  $\text{CO}_{(\text{g})} + 3\text{H}_{2(\text{g})} \rightarrow \text{CH}_{4(\text{g})} + \text{H}_2\text{O}_{(\text{g})}$

(c) Determine units for  $K_c$ .

7 .

Write equilibrium constant expression for each of the following reactions. (b)  $\text{CO}_{(\text{g})} + 2\text{H}_{2(\text{g})} \rightleftharpoons \text{CH}_3\text{OH}_{(\text{g})}$

8 .

Write equilibrium constant expression for each of the following reactions. (d)  $4\text{HCl}_{(\text{g})} + \text{O}_{2(\text{g})} \rightleftharpoons 2\text{Cl}_{2(\text{g})} + 2\text{H}_2\text{O}_{(\text{g})}$

9 . Determine the units of equilibrium constants for the following reactions. (d)  $\text{N}_{2(\text{g})} + 2\text{O}_{2(\text{g})} \rightleftharpoons 2\text{NO}_{2(\text{g})}$

10 . Describe the macroscopic characteristics of an equilibrium reaction.

11 . Write the equation for the self-ionization of water.

12 .

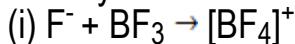
Ammonium hydroxide and nitric acid react and produce ammonium nitrate and water. Write balanced chemical equation for this neutralization reaction.

13 .

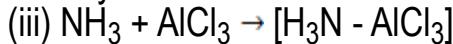
Write balanced chemical equations for the following neutralization reactions. (ii) Sulphuric acid + Sodium hydroxide  $\rightarrow$  Sodium sulphate + water.

14 . Identify Bronsted-Lowry acids or bases in the following reaction. (i)  $\text{HNO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{NO}_3^-$

15 . Identify Lewis acid and Lewis base in the following reactions.



16 . Identify Lewis acid and Lewis base in the following reactions.



17 .

Classify the following solutions as acidic, basic or neutral. (ii) A solution that has hydrogen ion concentration  $1.0 \times 10^{-10} \text{ M}$ .

18 .

Classify the following solutions as acidic, basic or neutral. (iv) A solution that has hydroxyl ion concentration  $1.0 \times 10^{-10} \text{ M}$ .

19 .

Identify Bronsted acids and Bronsted bases in the following reactions. (ii)  $\text{HCO}_3^{-(g)} + \text{H}_2\text{O}_{(l)} \rightleftharpoons \text{CO}_3^{2-}_{(aq)} + \text{H}_3\text{O}^+_{(aq)}$

20 .

Identify Bronsted acids and Bronsted bases in the following reactions. (iv)  $\text{HCl}_{(aq)} + \text{HCO}_3^{-(aq)} \rightleftharpoons \text{H}_2\text{CO}_3^{(aq)} + \text{Cl}^-_{(aq)}$

21 . Identify Bronsted acids and Bronsted bases in the following reactions. (vi)  $\text{H}_2\text{S} + \text{NH}_3 \rightleftharpoons \text{NH}_4^+ + \text{HS}^-$

22 .

Identify the Lewis acids and the Lewis bases in the following reactions. (ii)  $\text{B(OH)}_{3(s)} + \text{OH}^-_{(aq)} \rightarrow \text{B(OH)}^-_{4(aq)}$

23 .

Identify the Lewis acids and the Lewis bases in the following reactions. (iv)  $\text{OH}^-_{(aq)} + \text{Al(OH)}_{3(s)} \rightarrow \text{Al(OH)}^-_{4(aq)}$

24 . Classify water as proton donor or proton acceptor.

25 .

Write equations showing the ionization of the following as Bronsted-Lowery acids. (a)  $\text{HNO}_2_{(aq)}$  (b)  $\text{HCN}_{(aq)}$

26 . What is catenation?

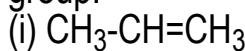
27 . Give three examples of alkyl groups.



28 . What is the difference between an alkane and an alkyl radical?

29 .

Identify the following compounds on the basis of functional groups they contain and encircle the functional group.



30 .

What is the name of the alkyl group obtained by removing an end hydrogen atom from (i) propane (ii) ethane

31 .

Identify the type of following compounds as an alcohol, aldehyde or ketone: (a)  $\text{HCHO}$ , which is used to manufacture polymers, such as urotropine which is used to treat urinary tract infection.

32 .

Identify the type of following compounds as an alcohol, aldehyde or ketone: (c)  $\text{CH}_3\text{CH}_2\text{OH}$ , which is used in the preparation of many organic substances such as plastics, cosmetics, tinctures etc.

33 . Give three examples of unsaturated hydrocarbons?

34 . What do you mean by dehydration reaction? Give one example.

35 . How can you convert methane into carbontetrachloride?

36 . How can you convert ethyl chloride into ethane?

37 . Draw electron dot and cross structure for Propane?

38 . Draw electron dot and cross structure for Propene?

39 . Decide, whether sucrose is a disaccharide or monosaccharide. Give reason.

40 . Write the formula of an amino acid and identify functional groups in it?

41 . Distinguish between mono, di- and tri-saccharides. Give examples.

42 . Explain hydrogenation of vegetable oil?

43 . Explain the use of dextrose in drips?

44 . List two main sources of acid rain?

45 . Define atmosphere?

46 . List the impurities present in rain water?

47 . In what ways, industrial wastes pollute water?

48 . List some waterborne diseases?

49 . Give chemical equation for the reaction of slaked lime with alum?

50 . Give chemical equation for the reaction that occurs when temporary hard water is boiled?

51 . How are urea prills produced?

52 .

Write chemical reactions that take place during carbonation in Solvay process?

53 . Write chemical reactions that take place during urea formation?

54 .

Petroleum is a mixture of several compounds, which are separated in a refinery. What is the name of the apparatus used for this purpose?

55 .

Petroleum is a mixture of several compounds, which are separated in a refinery. Write name of the fraction that represents gases?

**Write detailed answers of the following questions.**

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1 .

Bacteria in our mouth feed on small particles of food stuck to our teeth and change it into acid. Explain how using toothpaste of pH 10 can help to prevent the acid from damaging our teeth?

2 .

Given a molecular formula of a compound containing C, H and O and single bonds. List all the possible functional groups this compound can have?

3 .

Polyvinyl chloride (PVC) is a polymer, it is used for making vinyl sheets, drainage pipes, wire insulation etc. It is obtained from vinyl chloride.

Classify Vinyl chloride as saturated or unsaturated compound.

4 . Water adds to ethene according to the following reaction.

Identify functional groups in the reactant and product molecules.

5 . Write chemical equation for the preparation of propene from  $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$

6 . Write structural formulas for the products which are formed when 1-butene is reacted with  $\text{H}_2/\text{Ni}$

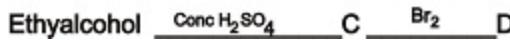
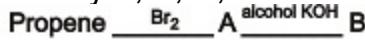
7 . Write a chemical equation to show the preparation of an alkane from an alkene and an alkyne?

8 .

Write a chemical equation to show the preparation of ethyne from dehalogenation of 1,2 dihalide and a tetrahalide?

9 . List some industrial uses of ethene and ethyne?

10 . Identify A, B, C, D in the following reaction.



11 . Differentiate between ethene and ethyne?

12 . Write structural formula of an amino acid containing four carbon atoms.

13 . Draw the structure of the molecules. A protein containing two amino acids.

14 . What three elements are important in both proteins and carbohydrates?

15 . Explain temperature variation in stratosphere and troposphere?

16 . Describe the sources of air pollutants?

17 . Describe ozone depletion and the effects?

18 . Differentiate between stratosphere and troposphere?

19 . Why is global warming often referred to as the greenhouse effect?

20 . Sulphur dioxide is a common pollutant from burning coal. State two effects caused by this pollutant?

21 . There have been various attempts to remove sulphur from coal before it is burned. Illustrate.

22 . Certain human activities are responsible for a significant increase in greenhouse effect, argue?

23 . What is hard water? Why is it sometimes undesirable?

24 . How can buildings made of limestone be affected by acid rain?

25 . List some disadvantages of water hardness?

26 . How does hard water differ from soft water?

27 . Explain how hard water hampers the cleansing action of soap?

28 . What are some health effects of biological contamination of water?

29 . What are some health effects of biological contamination of water?

30 . Public health depends on water quality. Give arguments.

31 .  
The following chemical equation is about a calcium compound. Comp A +  $\text{Ca}(\text{OH})_2$  +  $\text{H}_2\text{O}$   
Comp B +  $\text{H}_2\text{CO}_3$  Comp C  
Name and give the formula of (1) Compound A (2) Compound C

32 .  
The following chemical equation is about a calcium compound. Comp A +  $\text{Ca}(\text{OH})_2$  +  $\text{H}_2\text{O}$   
Comp B +  $\text{H}_2\text{CO}_3$  Comp C  
Compound C is soluble in water. Write a balanced chemical equation to show what happens when its aqueous solution is treated with washing soda?

33 . It is advisable to wash hands well with soap after using bathrooms, evaluate it?

34 . Evaluate the advantages of waste water treatment?

35 . State five specific products made from crude oil?

36 . Draw flow sheet diagram of Solvay process?

37 . Make a list of raw materials for Solvay process?

38 . Relate the study of chemistry to careers in industry?

39 . Petroleum is a sources of fuels. Name two fuels which are not obtained from petroleum?

40 . The table below lists some petroleum fractions with their approximate boiling points.

Fraction	Approximate Boiling Point/0C
P	Below 20
Q	35 - 70
R	170 - 250
S	350 - 500

- (a) Name the process by which the fractions are obtained from petroleum?
- (b) Which fraction will contain the shortest chain molecules?
- (c) Which fraction will contain the longest chain molecules?
- (d) In what state will fraction P be at room temperature and pressure?

