NTSE PRACTICE QUESTIONS CLASS X CHEMISTRY

Physical change and chemical change

Chemical reactions and equations

1. **Which of the following is an example of physical change?**

A) **Sublimation of dry ice**

B) Burning firewood's

C) Heating sugar to form caramel.

D) Corroding metal.

2. **Which of the following is a chemical change?**

A) Evaporation of water.

B) Sublimation of iodine.

C) Combustion of Liquified Petroleum Gas (LPG)

D) Freezing liquid mercury.

3. In his kitchen, Varun makes a concentrated sugar syrup by dissolving sugar in hot water.

A) Physical change

B) Chemical change

C) Both physical and chemical change

4.) **Choose the following that undergoes both physical and chemical changes.**

A) Making a sand castle.

B) A burning candle.

C) Sublimation of naphthalene balls.

D) Heating a wax.

5.Magnesium ribbon is rubbed before burning because it has a coating of

(a) basic magnesium carbonate

(b) basic magnesium oxide

(c) basic magnesium sulphide

(d) basic magnesium chloride

6. Which of the following are exothermic processes?

(i) Reaction of water with quick lime

(ii) Dilution of an acid

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(iii) Evaporation of water

(iv) Sublimation of camphor (crystals)

(a) (i) and (ii)

(b) (ii) and (iii)

(c) (i) and (iv)

(d) (ii) and (iv)

7. $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$

Identify the substance oxidized in the above equation.

(a) $MnCl_2$

(b) HCl

(c) MnO_2

(d) H_2O

8. Which of the following is an endothermic process?

(a) Dilution of sulphuric acid

(b) Condensation of water vapours

(c) Sublimation of dry ice

(d) Respiration in human beings

9. Select the oxidising agent for the following reaction:

$H_2S + I_2 \rightarrow 2HI + S$

(a) H_2S

(b) I_2

(C) HI

(d) S

10. The condition produced by aerial oxidation of fats and oils in foods marked by unpleasant smell and taste is called:

(a) antioxidation

(b) reduction

(c) corrosion

(d) rancidit

11.A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

(a) KMnO4 is an oxidising agent, and it oxidises FeSO4.

(b) FeSO4 acts as an oxidising agent and oxidises KMNO4.

(c) The colour disappears due to dilution; no reaction is involved.

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(d) $KMnO_4$ is an unstable compound and decomposes in the presence of $FeSO_4$ to a colourless compound.

12. Which of the following gases can be used for storage?

(a) Carbon dioxide or Oxygen

(b) Helium or Nitrogen

(c) Carbon dioxide or Helium

(d) Nitrogen or Oxygen

13. Give the ratio in which hydrogen and oxygen are present in water by volume.

(a) 1:2

(b) 1:1

(c) 2:1

(d) 1:8

14. Calcium oxide reacts vigorously with water to produce slaked lime.
$Cao_{(s)} + H_2O_{(l)} \rightarrow Ca(OH)_{2(aq)}$
This reaction can be classified as
(A) Combination reaction
(B) Exothermic reaction
(C) Endothermic reaction
(D) Oxidation reaction
Which of the following is a correct option?
(a) (A) and (C)
(b) (C) and (D)
(c) (A), (C) and (D)
(d) (A) and (B)

15. When hydrogen sulphide gas is passed through a blue solution of copper sulphate, a black precipitate of copper sulphide is obtained and the sulphuric acid so formed remains in the solution. The reaction is an example of a
(a) combination reaction
(b) displacement reaction
(c) decomposition reaction
(d) double displacement reaction.

16. In a double displacement reaction such as the reaction between sodium sulphate solution and barium chloride solution:
(A) exchange of atoms takes place
(B) exchange of ions takes place
(C) a precipitate is produced
(D) an insoluble salt is produced
The correct option is (2020)
(a) (B) and (D)
(b) (A) and (C)
(c) only (B)
(d) (B), (C) and (D)

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17.In which of the following, the identity of initial substance remains unchanged?

(a) Curdling of milk

(b) Formation of crystals by process of crystallisation

(c) Fermentation of grapes

(d) Digestion of food

18. What amount of quick lime (Cao) is given on complete decomposition of 10 g CaCO3?

(A) 56 g (B) 5.6 g (C) 0.56 g (D) 56 kg**?**

19. Oxidation number of sulphur in S_8, S_2F_2 and H_2S are:

A. 0,+1 and – 2

B. +2,+1 and – 2

C. 0 , + 1 and + 2

D. – 2 , + 1 and – 2

20. **When crystals of lead nitrate are heated strongly in a dry test tube**

A) Crystals immediately melt

B) A brown residue is left

C) White fumes appear in the tube

D) A yellow residue is left

21. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is:

a) 1 : 1

b) 2:1

c) 4:1

d) 1:2

22. In the double displacement reaction between aqueous potassium iodide and aqueous lead nitrate, a yellow precipitate of lead iodide is formed. While performing the activity if lead nitrate is not available, which of the following can be used in place of lead nitrate?

a) Lead sulphate (insoluble)

b) Lead acetate

c) Ammonium nitrate

d) Potassium sulphate

22. 10. $SnCl_2 + 2FeCl_2 \rightarrow SnCl_4 + 2FeCl_2$ is an example of _____ reaction.

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a) only oxidation

b) only reduction

c) redox

d) neither oxidation nor reduction

23. Reduction involves in _____ oxidation number.

a) decrease

b) increase

c) independence

d) remain constant

24. In the reaction of formation of magnesium oxide magnesium undergoes _____

a) reduction

b) oxidation

c) hydrogenation

d) decomposition

25.oxidation number of cr in chromium pentaoxide

a.5

b.6

c.7

d.10

26. What is Corrosion?

a) Destruction or deterioration of a material

b) Conversion of metal atoms to metallic ions

c) Conversion of metal ions to metal atoms

d) Destruction of materials involving in the conversion of metal atoms into metal ions

27. Which of the following subjects are important in understanding and controlling corrosion?

a) Thermodynamics

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b) Electrochemistry

c) Both Thermodynamics and Electrochemistry

d) Material Characterization

28. Which of the following is considered as high corrosive resistant material?

a) Mild steel

b) Cast iron

c) Zinc

d) Stainless steel

29. Which of the following reaction is correct?

a) Zinc + Sulphuric acid → Zinc sulphate + Oxygen

b) Zinc + Sulphuric acid → Zinc sulphate + Hydrogen

c) Zinc + Sulphuric acid → Zinc sulphate + Zink

d) d) Zinc + Sulphuric acid → Zinc sulphate + Water

30. . Which of the following is the balanced chemical equation?

a) $2Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

b) $3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

c) $4Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

d) $5Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

31. . What type of chemical reactions take place when electricity is passed through water?

a) Displacement

b) Combination

c) Decomposition

d) Double displacement

32. Which of the following is responsible for rancidity?

a) Alkalies

b) Ketones

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c) Aldehydes

d) Alcohols

33. The carbon dioxide gas is passed through a lime water, which is chemical change due to formation of _____.
(A) Greyish colour
(B) Greenish colour
(C) Milky colour
(D) Brownish colour

34. Burning of coal produces.
(A) Only ashes
(B) Heat and light only
(C) Ashes, heat and light only
(D) Ashes, heat and light and new substances

35. When ammonium dichromate is heated then :
(A) N_2O gas is evolved
(B) CrO_3 is formed
(C) NO_2 gas is evolved
(D) None of these

36. 16. $aFeS_2 + bO2 \rightarrow xFe_2O_3 + ySO_2$. The above equation balances when :
(A) a = 4, b = 11, x = 2, y = 8
(B) a = 11, b = 4, x = 8, y = 2
(C) a = 2, b = 4, x = 8, y = 2
(D) a = 4, b = 11, x = 8, y = 2

37. The highest oxidation state of M n Mn is shown by

A. K m n o 4

B. K 2 M n O 4

C. MnO2

D. M n 2 O 4

38. In the reaction

$3Br_2 + 6CO_3^{2-} + 3H_2O \rightarrow 5Br^- + BrO_3^- + 6HCO_3^-$

(a) Bromine is oxidised and carbonate is reduced.

(b) Bromine is reduced and water is oxidised.

(c) Bromine is neither reduced nor oxidised.

(d) Bromine is both reduced and oxidised.

39. 6. The oxidation number of Cr in $K_2Cr_2O_7$ is:

(a) -6

(b) +6

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(c) +2

(d) -2

40. 3. Which of the following is not a redox reaction?

(a) $CaCO_3 \rightarrow Cao + CO_2$

(b) $O_2 + 2H_2 \rightarrow 2H_2O$

(c) $Na + H_2O \rightarrow NaOH + 1/2H_2$

(d) $MnCl_3 \rightarrow MnCl_2 + 1/2\ Cl_2$