

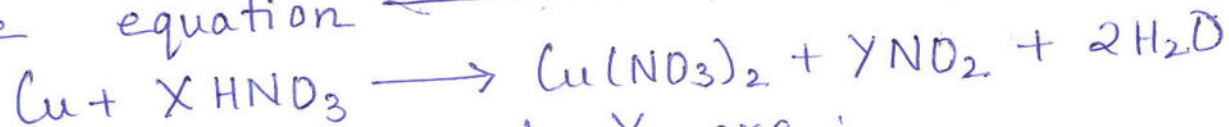
MODEL QUESTION PAPER

CLASS: X SUBJECT: CHEMISTRY

SECTION-A

MM: 25

1. The equation



The value of X and Y are:

(a) 3 and 5

(b) 8 and 6

(c) 4 and 2

(d) 7 and 1

(1)

2. Which of the following oxide(s) is/are soluble in water to form alkalis?

(a)  $\text{Na}_2\text{O}$

(b)  $\text{SO}_2$

(c)  $\text{K}_2\text{O}$

(d)  $\text{NO}_2$

(1)

3. A blue litmus paper was first dipped in dil. HCl and then in dil. NaOH solution. It was observed that the colour of the litmus paper:

(a) changed to red

(b) changed blue to colourless

(c) changed first to red and then to blue

(d) remained blue in both the solutions

(1)

4. On adding  $\text{NaHCO}_3$  to acetic acid, a gas is evolved which turns lime water milky due to the formation of:

(a) calcium bicarbonate

(b) Calcium hydroxide

(c) calcium acetate

(d) calcium carbonate

(1)

5. The chemical reaction between copper and oxygen can be categorised as:

(a) displacement reaction

(b) decomposition reaction

(c) combination reaction

(d) double displacement reaction

(1)

6. Ethanol reacts with sodium to evolve:

(a) hydrogen

(b) carbon dioxide

(c) Oxygen

(1)

7. Pentane has the molecular formula  $\text{C}_5\text{H}_{12}$ . It has:

(a) 5 covalent bonds

(b) 17 covalent bonds

(c) 12 covalent bonds

(d) 16 covalent bonds

Q No 8 contains two statements Assertion (A) and Reason (R). Each of these questions also has four

alternative choices, any one of which is the correct

(1)

answer. You have to select one option.

- (a) Both A and B are true and R is the correct explanation of A.
- (b) Both A and R are true, but R is not the correct explanation of A.
- (c) A is true, but R is false.
- (d) A is false, but R is true.

8. Assertion (A): The reaction of  $\text{Fe}_2\text{O}_3$  with Al is known as thermite reaction. This is used to join railway tracks or cracked machine parts. (1)

Reason (R): The reaction is highly exothermic.

### SECTION B

9. 2 g of silver chloride is taken in a china dish and the china dish is placed in sunlight for sometime. Write the chemical reaction involved in the form of a balanced chemical equation. Identify the type of chemical reaction. (2)

### SECTION C

10. State the chemical properties on which the following uses of baking soda are based?

- (a) as an antacid
- (b) as a soda fire extinguisher
- (c) to make bread and cake soft and spongy.

OR

(1) A milkman adds a very small amount of baking soda to fresh milk.

(a) Why does he shift the pH of the fresh milk from 6 to slightly alkaline? (3)

(b) Why does this milk take a long time to set as curd?

(11) Name the acid present in ant sting and give its chemical formula.

(12) (1) By the transfer of electrons, illustrate the formation of bond in magnesium chloride (3)

(ii) Why should the metal sulphides and carbonates be converted to metal oxides in the process of extraction of metal from them? (2+1=3)

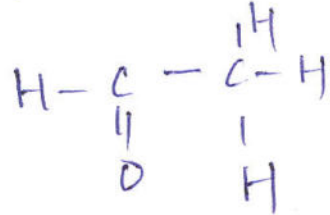
SECTION D

(B) A compound 'A' ( $C_2H_4O_2$ ) reacts with Na metal to form a compound 'B' and evolves a gas which burns with a pop ~~so~~ sound. Compound 'A' on treatment with an alcohol 'C' in presence of an acid forms a sweet smelling compound 'D' ( $C_4H_8O_2$ ). On addition of NaOH to 'D' gives back B and C. Identify A, B, C and D. Write the reactions involved. (5)

OR.

(a) Compare soaps and detergents on the basis of their composition and cleansing action in hard water.

(b) Name the following compound:



(c) Give two reasons for carbon forming a large number of compounds. (2+1+2=5)

SECTION E

14. A student decided to observe the conductive nature of ionic compounds in different physical state. He took two sample of compounds. In first case solid common salt was taken to make a circuit in which bulb does not glow. Secondly he dissolves the same salt in water and complete the circuit. In this case bulb glow. (4)

(a) What conclusion can you draw from this activity?

(b) Why does salt conduct ~~condu~~ electricity in aqueous solution but not in solid state?

MA

③ What happens when NaCl is passed through electricity.

OR.

If we take the sugar solution in water and test the conductivity, will the bulb glow?

Q.1. The following reaction is an example of  
 $\text{CaO(s)} + \text{H}_2\text{O(l)} \longrightarrow \text{Ca(OH)}_2\text{(aq.)}$

- (a) Combination & displacement reaction.
  - (b) Decomposition & exothermic reaction.
  - (c) combination & exothermic reaction.
  - (d) combination & endothermic reaction.
- (1)

Q.2. Complete the missing variables given as 'x' & 'y' in the following reaction.  
 $\text{Pb(NO}_3)_2\text{(aq)} + 2\text{KI(aq)} \longrightarrow \text{PbI}_2\text{(x)} + 2\text{KNO}_3\text{(y)}$

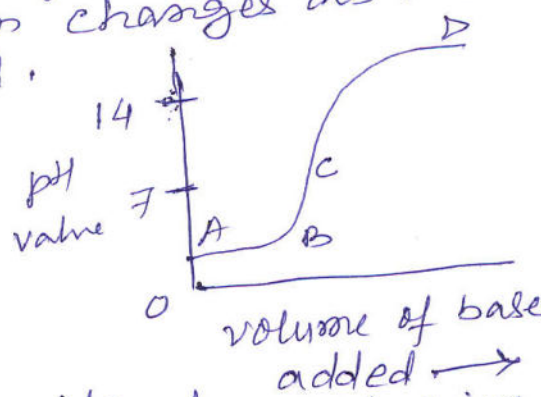
- (a) (s) & (aq)
- (b) (s) & (s)
- (c) (s) & (s)
- (d) (s) & (aq)

Q.3. Sodium carbonate is a basic salt because it is a salt of

- (a) strong acid & strong base
  - (b) weak acid & weak base.
  - (c) strong acid & weak base.
  - (d) weak acid & strong base.
- (1)

Q.4. The graph given below represents neutralisation reaction. The pH of solution changes as we add excess of base to an acid.

- (a) A
- (b) B
- (c) C
- (d) D



Q.5. Which of the following acids does not give hydrogen gas on reacting with metals (except Mg & Mn)

- (a) HCl
- (b)  $\text{H}_2\text{SO}_4$
- (c)  $\text{HNO}_3$
- (d) All of these.

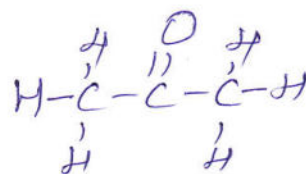
Q.6. The 3rd member of alkyne homologous series is

- (a) Methyne
- (b) Ethyne
- (c) Propyne
- (d) Butyne

Q.7. Name the given compound.

(a) Propanone (b) Propanol

(c) Propanal (d) Propanoic acid.



(1)

Q.8. Assertion (A) Carbon shows maximum catenation property in the periodic table.

Reason (R) - Carbon has small size & thus forms strong C-C bond.

(1)

Q.9. A metal acts as a good reducing agent. It reduces  $\text{Fe}_2\text{O}_3$  &  $\text{MnO}_2$ . The reaction with  $\text{Fe}_2\text{O}_3$  is used for joining broken railway tracks. Identify the metal & write all the chemical reactions.

(2)

Q.10. Give reason.

(a) Tap water conducts electricity whereas distilled water does not.

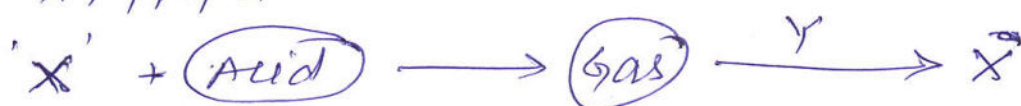
(b) Dry HCl gas does not turn blue litmus into red whereas dil. HCl does.

(c) For dilution of an acid, acid is added to water & not water into acid.

(3)

OR.

Kavita heated a metal carbonate 'X' with an acid gives a gas which when passed through a solution 'Y' gives the carbonate back. On the other hand, a gas 'G' that is obtained at anode during electrolysis of brine is passed on dry 'Y', it gives a compound 'Z', used for disinfecting drinking water. Identify X, Y, G & Z.



- Q.11.** What happens when (also write type of reaction)
- Lead nitrate is directly heated over flame.
  - Water is added to quicklime.
  - Silver chloride is exposed to sunlight. (3)

**Q.12.** (a) An organic compound 'X' of molecular formula  $C_2H_6O$  on oxidation with alkaline  $KMnO_4$ , gives a compound 'Y'. On heating compound 'X' with compound 'Y' in presence of conc.  $H_2SO_4$ , a sweet smelling compound 'Z' is produced. Identify 'X', 'Y' & 'Z'. Write chemical equations for the reactions involved. (3)

(b) What is saponification? Give the equation involved. (2)

**OR.**

(a) An aldehyde as well as a ketone can be represented by the same molecular formula, say  $C_3H_6O$ . Write their structures & name them. State the relation between the two in the language of science. (3)

~~(b) Draw & write the IUPAC~~

(b) How can we convert

- Ethene to Ethane
- Ethanol to ethene

(2)

PKT

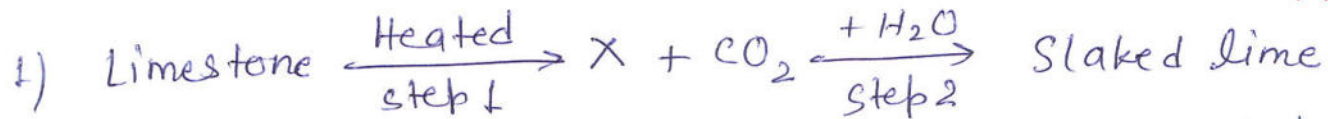
Q.13. Case based question

Metals at the bottom of the activity series are extracted from their sulphide ores by the process of roasting. Metals at the middle of the activity series are extracted from their ores by the process of roasting, calcination & then by reduction. Metals at the top of the activity series are extracted from their molten ores by the process of electrolytic. After obtaining the metals, they are purified by electrolytic refining.

- (a) Define calcination. (1)
  - (b) Why sulphide or carbonate ores are converted into oxides? (1)
  - (c) Name the sulphide ores of mercury & zinc. Name two ~~oxidizing~~ reducing agents used during ~~oxidation~~ reduction of metal oxides. (2)  
OR,  
What is anode, cathode & electrolytic solution in electrolytic refining of copper?
-



M.M. 25



Identify the correct option from the given table which represents the type of reaction occurring in step 1 and step 2

	endothermic	exothermic
(a)	x	✓
(b)	✓	x
(c)	✓	✓
(d)	x	x

[1]

2) In a double displacement reaction such as reaction between sodium sulphate solution and barium chloride solution

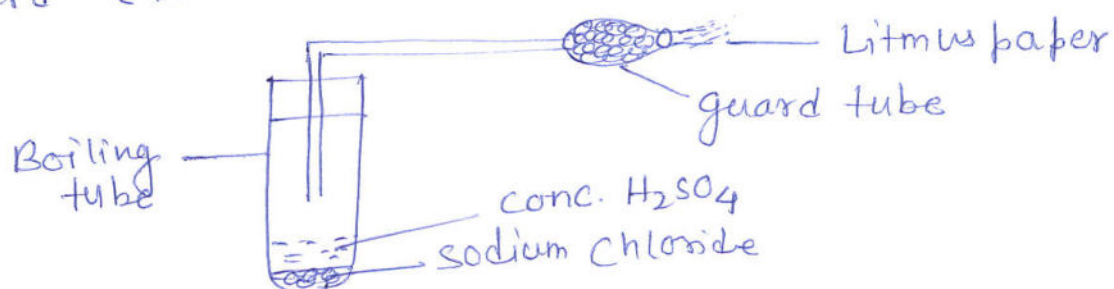
- (A) exchange of atoms takes place  
 (B) exchange of ions takes place  
 (C) a precipitate is produced  
 (D) an insoluble salt is produced

[1]

The correct option is:

- (a) (B) and (D)                      (b) (A) and (C)  
 (c) only (B)                            (d) (B), (C) and (D)

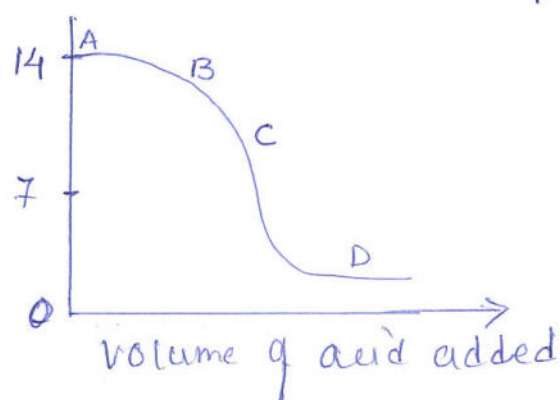
3) In the activity shown in the diagram, if the climate is humid, the role of calcium chloride taken in the guard tube is to



[1]

- (a) Absorb the evolved gas
- (b) warm up the gas
- (c) Absorb chloride ions from the evolved gas
- (d) Dry the gas

4) The graph given below depicts a neutralization reaction (acid + alkali  $\rightarrow$  salt + water). The pH of the solution changes as we add excess of acid to an alkali. Which letter denotes the area of the graph where both acid and salt are present.



[1]

- (a) A
- (b) B
- (c) C
- (d) D

5) An alloy is called amalgam if it contains one of the metals

- (a) aluminium
- (b) zinc
- (c) tin
- (d) Mercury

[1]

6) Haematite, bauxite and cinnabar are respectively the ore ores of

- (a) Fe, Al and Hg
- (b) Al, Fe and Hg
- (c) Hg, Al and Fe
- (d) Fe, Hg and Al

[1]

7) Glacial acetic acid is

- (a) 5-8% aqueous solution of acetic acid
- (b) 100% ethanoic acid
- (c) 5-8% solution of acetic acid in ethanol
- (d) 100% methanoic acid

[1]

- 8) Assertion - Soap produces less foam with hard water.  
Reason - Soap gets used up during reaction with calcium and magnesium salts in hard water [1]
- 9) On placing a piece of zinc metal in the solution of mercuric chloride, it acquires a shining silvery surface but when it is placed in a solution of magnesium sulphate, no change is observed. why? [2]
- 10) A metal M is found in nature as its carbonate,  $MCO_3$ . It is used in galvanization of iron articles. Identify the metal M and name its ore,  $MCO_3$ . How will you convert this carbonate ore into free metal? Explain with equations. [3]

- 11) a) For the preparation of cakes, baking powder is used. If at home your mother uses baking soda instead of baking powder, how will it affect the taste of the cake and why? [3]
- (b) How is baking soda converted into baking powder?
- (c) what makes the cake soft and spongy?

OR

- (a) which oxides are acidic and which oxides are basic?
- (b) How can you test that which oxides are acidic and which oxides are basic. Explain with one example in each case.
- (c) Name one oxide which is both acidic as well as basic. what are these oxides called?

- 12) a) A neutral compound (A) with molecular formula  $C_3H_6O_2$  is formed by the reaction of an acid (B) which is present in ant's sting and an

alcohol (C) which is used in preparation of tincture iodine. Identify Compound A, B and C and also write chemical equation involved in it.

b) why carbon neither forms  $C^{4+}$  cation nor  $C^{4-}$  anion but forms covalent compounds. [5]

c) write the structural formula of benzene  $C_6H_6$ .

OR

a) Two compounds 'X' and 'Y' have the same molecular formula  $C_6H_{12}$ . Compound 'X' is saturated while compound 'Y' is unsaturated. Draw their structures.

(b) Reshu by mistake forgot to label the two test tubes containing ethanol and ethanoic acid. Suggest an experiment to identify the substances correctly? Illustrate the reactions with the help of chemical equations.

(c) Draw electron dot structure of  $CH_3Cl$

### 13) Case based Question

It is often seen that iron articles in rainy season get rusted faster than in dry weather. However silver articles turn black in air in any season and likewise copper vessels get coated with a green layer. To protect iron from rusting, iron sheets coated with zinc are quite often used such as in buckets, iron water pipes etc.

a) why is rusting faster in rainy season? [1]

- b) why silver articles turn black in the air? [1]
- e) why copper gets coated with a green layer?  
How can it be cleaned chemically? [2]

OR

- c) what is galvanization? Name two applications where galvanization is used.

**Sample Question Paper (Chemistry)**  
**Class.10 // M.M - 25**

- 11) The given solution of lead nitrate in order to obtain a yellow precipitate must be mixed with :  
(a)potassium chloride (b)potassium nitrate  
(c) potassium sulphate (d) potassium iodide (1)
- 12) Which of the following can displace silver from silver nitrate solution?  
(a) Pb (b) Mg (c) both Pb and Mg (d) none of these (1)
- 13) Farmers neutralise the effect of acidity of the soil by adding :  
(a) slaked lime (b) gypsum (c)caustic soda (d)baking soda (1)
- 14) A salt can be prepared in the laboratory by reacting :  
(a) metal and dilute sulphuric acid (b) metal and dilute hydrochloric acid  
(c) metal carbonate and dilute hydrochloric acid (d) all options are correct (1)
- 15) Aqua regia is a mixture of concentrated hydrochloric acid and concentrated nitric acid in the ratio of:  
(a) 1:1 (b) 1:3 (c) 3:1 (d)1:2 (1)
- 16) Which of the following are used for thermit reaction needed to repair broken railway tracks?  
(a)  $Al_2O_3 + Fe$  (b)  $Fe_2 + Al_2O_3$  (c)  $MnO_2 + Al$  (d)  $Cu_2O + Fe$  (1)
- 17) The number of C-H bonds in the molecule of ethane are:  
(a) 4 (b) 5 (c) 6 (d) none of these (1)
- 18) Assertion : Butane and 2-Methylbutane are homologues.  
Reason : They differ in their molecular formula by  $-CH_2$ . (1)
- 19) What is an alloy? Write the composition of bronze (% composition is not needed). (2)
- 20) (a) Write the chemical equation for the reaction between plaster of paris and water.  
(b) Name the substance which on treating with chlorine gives bleaching powder. Write the chemical equation involved. (3)
- 21) Show the formation of Aluminium oxide and Magnesium nitride by the transfer of electrons (detailed steps are needed). (3)
- OR**
- Write the equations for the reactions of:  
(a) iron with steam (b) magnesium with water (c) sodium with water.
- 22) (a) How many structural isomers you can draw for pentane ?Draw their structures and name them.  
(b) Draw the covalent bond structures of Ethanoic acid and Butanone (electron dot structure not required). (5)
- OR**
- (a) Explain the formation of scum when hard water is treated with soap. Write the chemical equation involved.  
(b) How would you name (IUPAC names only) the following compounds?  
(i)  $CH_3-CH_2-CH_2-Cl$ ,  
(ii)  $CH_3-CH_2-CH_2-OH$ ,  
(iii)  $CH_3-CH_2-CH_2-CHO$ .
- 23) An organic compound 'A' is an essential constituent of beer and wine. Oxidation of 'A' yields another organic compound 'B' which is present in vinegar. Both 'A' and 'B' when heated in the presence of a few drops of concentrated sulphuric acid form a sweet smelling compound 'C'.  
(a) Identify compounds 'A' and 'B'.  
(b) What is the name of the reaction when 'A' and 'B' react?  
(c) Give both the common and IUPAC names of the compound 'C' formed. (4)
- OR**
- (c) How can 'C' be converted back to 'A' and 'B'? Write the name and the chemical reaction involved. (4)