



- (i) Why do the domes appear greenish though copper is orange-red in colour?
- (ii) In your opinion, Should the copper domes be replaced by iron domes to overcome the problem of change of colour of copper domes?
- (iii) Domes used to be made from thin sheets of metals. Why did the ancient architects use copper to make domes?

Or

Draw the electron dot structures for

- (a) ethanoic acid  
(b) Propanone  
(c)  $H_2S$

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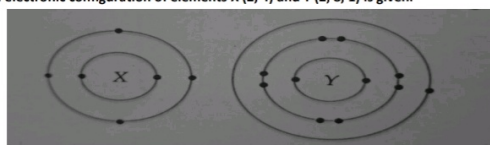
12. (a) Distinguish between Roasting and Calcination by giving example. Which of these two is used for sulphide ore and why?
- (b) What happens when alkaline  $KMnO_4$  and acidified  $K_2Cr_2O_7$  added to ethanol? Give equation. Also state the role of alkaline  $KMnO_4$  in this reaction.

Or

An organic compound A is widely used as a preservative in pickles and has molecular formula  $C_2H_4O_2$  compound reacts with ethanol to form a sweet smelling compound B.

- (a) Identify the compound A.
- (b) Write the chemical equation for its reaction with ethanol to form compound B.
- (c) How can we get compound A back from B? Name the process and write the corresponding chemical equation.
- (d) Which gas is produced when compound A reacts with washing soda? Write the chemical equation. 4

13. The electronic configuration of elements X (2, 4) and Y (2, 8, 1) is given.



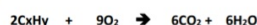
Based on the information given above, answer the following questions

- (a) Which type of bond is formed between X and Y? Explain with reason.

- (b) How many valence electrons take part in the bond formation between X and Y? Explain
- (c) Give the chemical formula of the compound.
- (d) State one physical property of this compound based on the type of bonding.
- (e) Write the chemical equation for the reaction of Y with ethanoic acid.

Or

A hydrocarbon with the formula  $C_xH_y$  undergoes complete combustion as shown in the following equation:



- (a) What are the values of 'x' and 'y'?
- (b) Give the chemical (IUPAC) name of the hydrocarbon.
- (c) Draw its electron dot structure.
- (d) Name the alcohol which on heating with conc.  $H_2SO_4$  will produce the above hydrocarbon  $C_xH_y$ .
- E. Write a balanced chemical equation for the reaction of  $C_xH_y$  with hydrogen gas in presence of nickel. 5





## SECTION – B (Chemistry part)

1. Four statements about the reaction of oxides with dilute hydrochloric acid and aqueous sodium hydroxide are listed.

- (a) Aluminium oxide reacts with both dilute HCL and aqueous NaOH.
- (b) Calcium oxide reacts with dilute HCL and aqueous NaOH.
- (c) Zinc oxide reacts with both dilute HCL and aqueous NaOH.
- (d) Sulphur dioxide does not react with either dilute HCL or aqueous NaOH.

Which statements are correct?

- (i) a and b      (ii) a and c      (iii) b and d      (iv) c and d      1

2. The main observations while performing the experiment of burning magnesium ribbon in air are

- (a) Magnesium ribbon burns with dazzling white flame.
- (b) A White powder is formed.
- (c) Magnesium ribbon vapourises.
- (d) Aqueous solution of the white powder turns blue litmus to red.
- (i) a and d      (ii) b and c      (iii) a and b      (iv) c and d      1

3. Vinay observed that the stain of curry on a white shirt becomes reddish brown when soap is scrubbed on it, but it turns yellow again when shirt is wash with plenty of water. What might be the reason for his observation?

- (a) Water is acidic in nature.
- (b) Soap is basic in nature.
- (c) Turmeric is synthetic indicator which gives a reddish tinge in bases.
- (d) Turmeric is natural indicator which gives a reddish tinge in acids.      1

4. Which of the following does not belong to same homologous series?

- (i) CH<sub>4</sub>      (ii) C<sub>2</sub>H<sub>6</sub>      (iii) C<sub>3</sub>H<sub>8</sub>      (iv) C<sub>4</sub>H<sub>10</sub>      1

5. Farmers are advised to add quicklime to acidic soils before sowing the seeds because

- (a) Quick lime neutralize the excess acidity of the soil and improves fertility.
- (b) Quick lime adds OH<sup>-</sup> ions and convert soil into basic cement like structure.
- (c) Quick lime reacts with water to release CO<sub>2</sub> for plants.
- (d) Quick lime increases soil temperature without affecting PH.      1

6. Which of the following equation represent displacement reactions and what are the correct values of 'p' and 'q' in these equations?



- (i) only equation 1 is displacement, p = 1 and q = 0.
- (ii) both equations are displacement, p = 1 and q = 2.
- (iii) only equation 2 is displacement reaction, p = 0 and q = 3.
- (iv) both equations are not displacement reactions, p = 1 and q = 0.      1

DIRECTIONS (Q7 AND Q8):- Assertion (A) and Reason (R) based questions

- (a) Both A and R are true and R is 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      2

7. Assertion (A) : Carbon shows maximum catenation property in the periodic table.

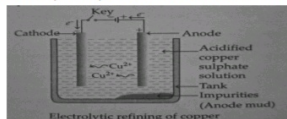
Reason (R) : Carbon has small size and thus, forms strong C-C bond.

8. Assertion (A): When HCL is added to zinc granules, a chemical reaction occurs.

Reason (R) : Evolution of a gas and change in colour indicate that a chemical reaction is taking place.

9. The following activity is set up in the science lab by the teacher.

He took a thick block of impure copper as anode and a thin strip of pure copper as cathode in an acidified copper-sulphate solution and connected to the circuit for electrolysis. After some time, he observed that the cathode became thicker and a layer of impurities was seen at the bottom of the tank.



- (a) If the teacher replaces impure copper with pure copper block as the anode, will the student observation change? Justify your answer.
  - (b) What is the name of the layer collected at the bottom of the tank and why does it form?      2
10. Justify your answer by giving chemical equations, when a metal 'X'.
- (a) Used to join railway track or crack in machine parts.
  - (b) Metal 'X' oxide amphoteric in nature.
  - (c) Metal 'X' reacts with steam not with cold and hot water.

Or

Write the chemical formula of washing soda. How is it obtained from baking soda? List two uses of washing soda.

11. The domes of many building in Europe are made in copper. These domes now appear greenish in colour.

- (i) Why do the domes appear greenish though copper is orange-red in colour?

