



## CHEMISTRY

### BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

#### SAMPLE QUESTION PAPER 5

##### Section I

1. Identify the gas in the following:

Gas produced by the action of concentrated nitric acid on copper.

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2. Name a substance which is :

used for illuminating country houses

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3. Identify the following substance :

A gas which does not conduct electricity in the liquid state but conducts electricity when dissolved in water.



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4. Identify the gas in the following:

Gas used as a reducing agent in reducing copper oxide to copper.



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5. Identify the gas in the following:

Gas obtained by burning sulphur.



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6. State one relevant observation for the following:

Action of dilute hydrochloric acid on lead, nitrate solution.

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7. State relevant observations for the following:

Ammonium hydroxide solution is added to zinc nitrate solution in minimum quantity and then in excess.

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8. State one relevant observation for the following:

Platinum is added to aqua-regia.

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9. State one observation for the following : Ammonia gas is passed over heated copper [II] oxide.

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10. State one relevant observation for the following:

Nitric oxide comes in contact with atmosphere.

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11. Name the following substance :

A yellow non-metal formed when hydrogen sulphide gas is passed through concentrated acid.

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**12.** From the organic compounds given below, choose one compound in case which relates to the description

[Ethyne, ethanol, acetic acid, ethene]

A hydrocarbon which on catalytic hydrogenation gives a saturated hydrocarbon.

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**13.** Name the following substance :

A strong but non-volatile mineral acid.

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**14.** Name the following:

An element having highest electronegativity.

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**15.** Name the following substance :

Anode used in the electro-refining of copper.

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**16.** Give the chemical tests between the following pairs:

Iron (II) sulphate and Iron (III) sulphate.

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**17.** Give one chemical test to distinguish between the following pairs of compounds.

Zinc sulphate solution and Zinc chloride solution.

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**18.** Give the chemical tests between the following pairs:

A lead salt and a zinc salt.



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**19.** Give one chemical test to distinguish between the following pairs of compounds.

Calcium nitrate solution and Calcium chloride solution.



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**20.** Give the chemical tests distinguish between the following pairs:

Copper sulphate and Iron (II) sulphate.



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**21.** Select from the list given (A to E) one substance in each case which matches the description given in parts (i) to (v). (Note: Each substance is used only once in the answer.

(A) Nitroso iron (II) sulphate (B) Iron (III) chloride

(C) Chromium sulphate (D) Lead (II) chloride (E) Sodium chloride

- (i) A compound which is yellow brown.
- (ii) A compound which is insoluble in cold water, but soluble in hot water.
- (iii) The compound responsible for the brown ring during the ring test of nitrate ion.
- (iv) A compound whose aqueous solution is neutral in nature.
- (v) The compound which is responsible for the green colouration when sulphur dioxide is passed through acidified potassium dichromate solution.

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**22.** Some word/words are missing/written wrong in the following statement. You are required to rewrite the statement in the correct form using the appropriate word/words

Magnesium reacts with water to liberate hydrogen and magnesium oxide.

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23. Some word/words are missing/written wrong in the following statement. You are required to rewrite the statement in the correct form using the appropriate word/words

When  $MnO_2$  is heated with conc. HCl, a greenish-yellow, hydrogen gas, is produced.

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24. Some word/words are missing/written wrong in the following statement. You are required to rewrite the statement in the correct form using the appropriate word/words

Metallurgy deals with production of metals.

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25. Some word/words are missing/written wrong in the following statement. You are required to rewrite the statement in the correct form

using the appropriate word/words

Ethyl chloride reacts with Potassium hydroxide to give ethyl alcohol.

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26. Some word/words are missing/written wrong in the following statement. You are required to rewrite the statement in the correct form using the appropriate word/words

During electrolysis oxidation occurs at the cathode.

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27. From the formulae listed in the box, choose one in each case corresponding to the salt having the given description:

$\text{AgCl}$ ,  $\text{CuCO}_3$ ,  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ,  $\text{KNO}_3$ ,  $\text{NaCl}$ ,  $\text{NaHSO}_4$ ,  $\text{Pb}(\text{NO}_3)_2$ ,

(i) an acid salt

(ii) an insoluble chloride

(iii) on treating with concentrated sulphuric acid, this salt changes from blue to white.

(iv) on heating, this salt changes from green to black.

(v) this salt gives nitrogen dioxide on heating.

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**28.** From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

An insoluble chloride.

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**29.** From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating, this salt gives a yellow residue when hot and white when cold.

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30. From the formulae listed in the box, choose one in each case corresponding to the salt having the given description:

$\text{AgCl}$ ,  $\text{CuCO}_3$ ,  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ,  $\text{KNO}_3$ ,  $\text{NaCl}$ ,  $\text{NaHSO}_4$ ,  $\text{Pb}(\text{NO}_3)_2$ ,

(i) an acid salt

(ii) an insoluble chloride

(iii) on treating with concentrated sulphuric acid, this salt changes from blue to white.

(iv) on heating, this salt changes from green to black.

(v) this salt gives nitrogen dioxide on heating.

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31. From the formula listed below, choose one in each case, corresponding to the salt having the given descriptions:

$\text{AgCl}$ ,  $\text{CuCO}_3$ ,  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ,  $\text{KNO}_3$ ,  $\text{NaCl}$ ,  $\text{NaHSO}_4$ ,  $\text{Pb}(\text{NO}_3)_2$ ,  $\text{ZnCO}_3$

This salt gives nitrogen dioxide on heating.

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## Section I Choose The Correct Answer

1. The number of electrons present in the valence shell of a halogen is :

A. 1

B. 3

C. 5

D. 7

**Answer: D**



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2. The metal oxide which can react with acid as well as alkali is :

A. Silver oxide.

B. Copper (II)oxide

C. Aluminium oxide

D. Calcium oxide

**Answer: C**

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3. The reducing agent used for the reduction of Copper (II) oxide to copper:

A. Oxygen

B. Hydrogen

C. Copper

D. None of these

**Answer: B**

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4. Dilute sulphuric acid will produce a white precipitate when added to a solution of:

Copper sulphate ; Sodium nitrate : Zinc nitrate : Lead nitrate

A. Copper nitrate

B. Zinc nitrate

C. Lead nitrate

D. Sodium nitrate

**Answer: C**



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5. The formation of 1-2 dibromoethane from ethene and bromine is an example of \_\_\_\_\_ .

A. Substitution

B. Dehydration

C. Dehydrohalogenation

D. Addition

**Answer: D**

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## Section II

1. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram given below and answer the questions that follows:

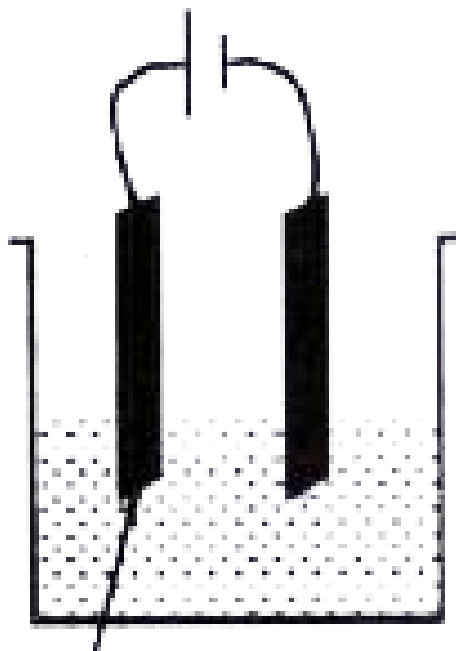


Which electrode to your left or right is known as the oxidizing electrode and why?

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2. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram given below and answer the question that follows:

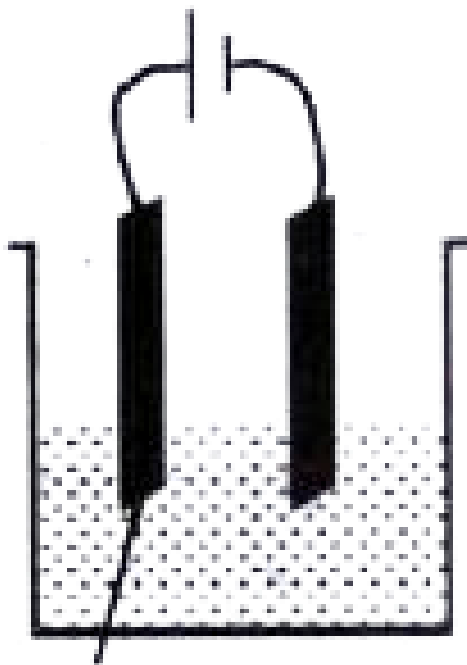


## Copper (II) Sulphate Solution

Write the equation representing the reaction that occurs.

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3. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram given below and answer the question that follows:



## Copper (II) Sulphate Solution

State two appropriate observations for the above electrolysis reaction.

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4. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

Write the equation for its preparation mentioning the condition required.

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5. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

Name the drying agent used and justify your choice.

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6. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

State a safety precaution you would take during the preparation of hydrochloric acid.

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7. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas:

How would you check whether or not the gas jar is filled with hydrogen chloride?



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8. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C N O F Ne

To which period do these elements belong?



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9. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

One element of this period is missing. Which is the missing element and where should it be placed?



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**10.** The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Which one of the elements in this period shows the property of catenation?



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**11.** The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Place the three elements fluorine, beryllium and nitrogen in the order of increasing electronegativity.



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**12.** The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Which one of the above elements belongs to the halogen series?

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13. Match the salts given in Column I with their . method of preparation given in Column II :

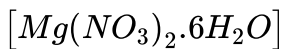
Column I	Column II
(i) $\text{Pb}(\text{NO}_3)_2$ from $\text{PbO}$	(A) Simple displacement
(ii) $\text{MgCl}_2$ from $\text{Mg}$	(B) Titration
(iii) $\text{FeCl}_3$ from $\text{Fe}$	(C) Neutralization
(iv) $\text{NaNO}_3$ from $\text{NaOH}$	(D) Precipitation
(v) $\text{ZnCO}_3$ from $\text{ZnSO}_4$	(E) Combination

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14. A gaseous hydrocarbon contains 82.76% of carbon. Given that its vapour density is 29, find its molecular formula. [C = 12, H = 1]

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15. Find the total percentage of magnesium in magnesium nitrate crystals



[Mg=24, N=14, O=16, H=1]

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16. The following table shows the tests a student performed on four different aqueous solutions which are X, Y, Z and W. Based on the observations provided, identify the cation present :

Chemical test	Observation	Conclusion
To solution X, ammonium hydroxide is added in minimum quantity first and then in excess.	A dirty white precipitate is formed which dissolves in excess to form a clear solution.	(i)
To solution Y, ammonium hydroxide is added in minimum quantity first and then in excess.	A pale blue precipitate is formed which dissolves in excess to form a clear inky blue solution.	(ii)
To solution W, a small quantity of sodium hydroxide solution is added and then in excess.	A white precipitate is formed which remains insoluble.	(iii)
To a salt Z, calcium hydroxide solution is added and then heated.	A pungent smelling gas turning moist red litmus paper blue is obtained.	(iv)

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17. Name a metal which is found abundantly in the earth's crust.



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18. State one observation: A zinc granule is added to copper sulphate solution.



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19. Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).



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20. Write the name and formula of an ore of aluminium.



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21. Write the constituents of electrolyte for the extraction of aluminium.



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22. Which of the following oxides can act as a reducing agent?

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23. Why is carbon tetrachloride, which is a liquid and non-electrolyte ?

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24. Why should the temperature of the reaction mixture of nitric acid not be allowed to rise above  $200^{\circ}C$ ?

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25. Ammonia not collected over water. Explain

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26. In the manufacture of sulphuric acid by contact process give the equation for the conversion of sulphur trioxide to sulphuric acid.

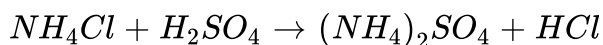
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27. Explain the following giving suitable reasons: In the manufacture of  $H_2SO_4$  by contact process:

For the production of concentrated sulphuric acid,  $SO_3$  is not directly dissolved in water.

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28. Write balanced chemical equation for the following:



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**29.** What happens when (write balanced chemical equations only)

Dry chlorine gas is passed over hot iron.

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**30.** Write balanced chemical equations for the Ethanol under high pressure and low temperature is treated with acidified potassium dichromate.

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**31.** Write balanced chemical equations for each of the following:

When excess of ammonia is treated with chlorine.

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32. (i) Write structural formula of the compound formed when one mole of ethyne reacts with one mole of hydrogen gas.

(ii) Name the catalyst used in the above reaction.

(iii) Write temperature at which the reaction mentioned in (a) occurs.

(iv) Name the reaction.



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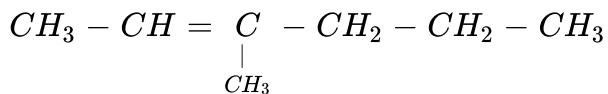
33. Fill in the blanks with the correct words from the brackets:

Alkenes are the (i) \_\_\_\_\_ analogous /homologous) series of (ii) \_\_\_\_\_(saturated / unsaturated) hydrocarbons. They differ from alkanes due to the presence of (iii) \_\_\_\_\_ (double/single) bonds. Alkenes mainly undergo (iv) \_\_\_\_\_ (addition / substitution) reactions.



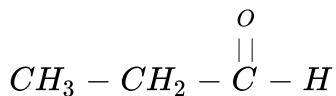
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34. Write the IUPAC name for the following:



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35. Write the IUPAC name for the following:



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