



CHEMISTRY

BOOKS - OSWAL PUBLICATION

DIKSHA QUESTIONS

Chemical Reaction Very Short Answer

1. Write the type of reactions in the following: The reaction between an acid and a base



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2. Write the type of reactions in the following: Rusting of iron

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3. Which one is the chemical change - Fermentation of fruit juice or diluting fruit juice?

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4. What happens when quicklime is added to water?

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5. What is the general name of the chemicals which are added to fat and oil containing foods to prevent the development of rancidity?

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6. Name and state the law which is kept in mind when we balance a chemical reaction.

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7. Why do we store silver chloride in dark coloured bottles?



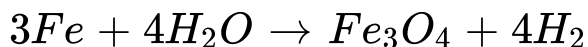
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8. Write the balanced chemical equation of the reaction between sodium carbonate and dilute hydrochloric acid .



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9. Identify the oxidizing and reducing agent in the given reaction.



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10. What is a redox reaction ?



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11. Why do the potato chips manufacturers usually flush packets of chips with nitrogen gas?



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12. Translate the following statements into chemical equations and balance them(if needed): Lead nitrate undergoes thermal decomposition to form Lead Monoxide, Nitrogen dioxide and oxygen gas.



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13. Translate the following statements into chemical equations and balance them(if needed): Quicklime combines with Carbon dioxide to form Calcium Carbonate.



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14. Translate the following statements into chemical equations and balance them(if needed): Aluminium metal granule is added in Sulphuric acid to form Aluminium Sulphate and hydrogen gas.

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Chemical Reaction Short Answer

1. 2 g of ferrous sulphate crystals are heated in a dry boiling tube.

List any two observations.

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2. 2 g of ferrous sulphate crystals are heated in a dry boiling tube.

Name the type of chemical reaction takes place.

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3. 2 g of ferrous sulphate crystals are heated in a dry boiling tube.

Write the chemical equation for the reaction.

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4. What do you mean by rancidity? Mention any two ways by which rancidity can be prevented.

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5. No chemical reaction takes place when granules of a solid, A, are mixed with the powder of another solid, B. However when the mixture is heated, a reaction takes place between its components. One of the products, C, is a metal and settles down in the molten state while the other product, D floats over it. It was observed that the reaction is highly exothermic.

Based on the given information make an assumption about A and B and write a chemical equation for the chemical reaction indicating the conditions of reaction, physical state of reactants and products and thermal status of reaction.



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6. No chemical reaction takes place when granules of a solid, A, are mixed with the powder of another solid, B. However when the mixture is heated, a reaction takes place between its components. One of the products, C, is a metal and settles down in the molten state while the other product, D floats over it. It was observed that the reaction is highly exothermic.

Mention any two types of reaction under which above chemical reaction can be classified.



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7. When a green iron salt is heated strongly, its colour finally changes to brown and odour of burning sulphur is given out.

Name the iron salt.



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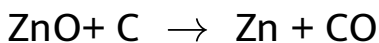
8. When a green iron salt is heated strongly, its colour finally changes to brown and odour of burning sulphur is given out.

Name the type of reaction that takes place during heating of iron salt.



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9. What is an oxidation reaction (i) the substance oxidised and (ii) the substance reduced:



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10. On adding dilute HCl to copper oxide powder the solution formed is blue green in colour. Predict the new compound formed which imparts a blue green colour to the solution.



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11. When potassium iodide solution is added to a solution of lead nitrate in a testtube, a precipitate is formed.

What is the colour of this precipitate? Name the compound precipitated.



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12. When potassium iodide solution is added to a solution of lead nitrate in a testtube, a precipitate is formed.

Write the balanced chemical equation for this reaction.



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13. When potassium iodide solution is added to a solution of lead nitrate in a testtube, a precipitate is formed.

List any two types of reaction in which this reactions can be placed.



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14. While Abhi was about to burn magnesium ribbon in the chemistry laboratory, the teacher asked him to clean the ribbon with the sand paper before burning it.

What could be the reason for the above instruction by the teacher? After burning the magnesium ribbon, Abhi obtained a white coloured residue. Name this residue. What type of chemical reaction has occurred? Write a balanced chemical equation to explain the reaction.



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15. A group of students carried out electrolysis of acidified water in the laboratory. By the end of the experiment two gases were collected in the test tubes at both the electrodes.

Name the gases collected at cathode and the anode respectively.

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16. A group of students carried out electrolysis of acidified water in the laboratory. By the end of the experiment two gases were collected in the test tubes at both the electrodes.

The gas collected in one test tube is double the volume of gas collected in the other. Name this gas.

Give reason for your answer.

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17. A group of students carried out electrolysis of acidified water in the laboratory. By the end of the experiment two gases were collected in the test tubes at both the electrodes.

Write a balanced chemical equation to represent the electrolysis of water.



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18. Varun carried out the chemical reaction between aqueous solutions of barium chloride and sodium sulphate. Write any one prominent observation that Varun would have recorded. Name the type of

chemical reaction that has occurred and define it.

Write a balanced chemical equation to explain above reaction.



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19. Write the balanced chemical equation of the reaction between sodium carbonate and dilute hydrochloric acid .



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20. What is a redox reaction ?



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Chemical Reaction Long Answer

1. What is meant by 'rusting' ? With labelled diagrams, describe an activity to find out the conditions under which iron rusts.



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2. When hydrogen is passed over copper oxide, copper and steam are formed. Write a balanced equation for this reaction and state which of the

chemicals are :

(*i*)elements (*ii*) compounds (*iii*) reactants
(*iv*)products (*v*) metals (*vi*) non-metals

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3. When hydrogen is passed over copper oxide, copper and steam are formed. Write a balanced equation for this reaction and state which of the chemicals are :

(*i*)elements (*ii*) compounds (*iii*) reactants
(*iv*)products (*v*) metals (*vi*) non-metals

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4. When hydrogen is passed over copper oxide, copper and steam are formed. Write a balanced equation for this reaction and state which of the chemicals are :

- (i) elements (ii) compounds (iii) reactants
(iv) products (v) metals (vi) non-metals



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5. When hydrogen is passed over copper oxide, copper and steam are formed. Write a balanced equation for this reaction and state which of the chemicals are :

- (i) elements (ii) compounds (iii) reactants
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- (i) elements (ii) compounds (iii) reactants
(iv) products (v) metals (vi) non-metals



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7. When hydrogen is passed over copper oxide. copper and steam are formed. Write a balanced chemical

equation for this reaction and state which of the chemicals are non-metals.



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8. What happens when silver chloride decomposes in presence of sunlight. Write the chemical reaction involved. Identify the type of reaction. What is the application of this reaction?



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9. On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (Black), oxygen

gas and a brown gas X is formed

(a) Write a balanced chemical equation of the reaction.

(b) Identify the brown gas X evolved.

(c) Identify the type of reaction.

(d) What could be the pH range of aqueous solution of the gas X ?



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(a) Write a balanced chemical equation of the reaction.

(b) Identify the brown gas X evolved.

(c) Identify the type of reaction.

(d) What could be the pH range of aqueous solution of the gas X ?

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13. Hydrus ferrous sulphate crystals are heated in a boiling tube for few seconds. Water droplets are seen in the inner sides of test tube and the colour of the crystals changes. On continuous heating a colourless gas X with smell of burning sulphur is evolved and a residue Y is obtained.

What is the colour of the crystals before and after mild heating?

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14. Hydrus ferrous sulphate crystals are heated in a boiling tube for few seconds. Water droplets are seen in the inner sides of test tube and the colour of the crystals changes. On continuous heating a colourless gas X with smell of burning sulphur is evolved and a residue Y is obtained.

Identify the gas X and the residue Y formed.



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15. Hydrus ferrous sulphate crystals are heated in a boiling tube for few seconds. Water droplets are seen

in the inner sides of test tube and the colour of the crystals changes. On continuous heating a colourless gas X with smell of burning sulphur is evolved and a residue Y is obtained.

Write the balanced chemical equation for the above reaction.



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16. Translate the following statements into chemical equations and then balance them.

Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.

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17. Write the balanced chemical equation for the following reaction : Sodium metal reacts with water to give sodium hydroxide and hydrogen.

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18. Write a balanced chemical equation for each of the following types of chemical reactions: Displacement reaction

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19. Write a balanced chemical equation for each of the following types of chemical reactions: Double displacement reaction



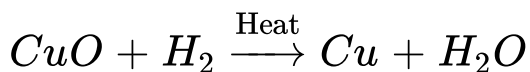
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20. Write a balanced chemical equation for each of the following types of chemical reactions: Photolytic decomposition reaction



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21. Consider the chemical equation given below and answer the questions that follow:



Name the substance which is getting oxidized and the substance which is getting reduced



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22. Consider the chemical equation given below and answer the questions that follow:



Name the oxidizing and the reducing agent.



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23. What are fossils? How are they formed? Describe in brief two methods of determining the age of fossils. State any one role of fossils in the study of the process of evolution.

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24. A metal X is found in the form of ribbon in the chemistry lab. It burns in the presence of oxygen with a bright dazzling light to form a white solid Z.

Identify X and Z

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25. A metal X is found in the form of ribbon in the chemistry lab. It burns in the presence of oxygen with a bright dazzling light to form a white solid Z.

Write a balanced chemical equation for the reaction and name the type of reaction.



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26. A metal X is found in the form of ribbon in the chemistry lab. It burns in the presence of oxygen with a bright dazzling light to form a white solid Z.

What product would be formed if X is made to react with Nitrogen?



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Chemical Reaction Multiple Choice Question

1. In which of the following, heat energy will be given?

A. Electrolysis of water

B. Dissolution of ammonium chloride in water

C. Burning of L.P.G.

D. Decomposition of silver bromide in the presence of sunlight

Answer:



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2. Which information is not conveyed by a balanced chemical equation ?

A. Physical states of reactants and products

B. Symbols and formulas of all the substances in evolved in a particular reaction

C. Number of atoms/molecules of the reactants and products formed

D. Whether a particular reaction is actually feasible or not

Answer:



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3. The chemical reaction between quicklime and water is characterised by :

- A. Evolution of hydrogen gas
- B. Formation of slaked lime
- C. Change in temperature of mixture
- D. Change in colour of product.

Answer: C



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4. Which of the following gases can be used for storage of fresh sample of an oil for a long time?

A. CO_2 or O_2

B. N_2 or O_2

C. CO_2 or He

D. He or N_2

Answer:

5. Which of the following are exothermic processes?

1. Reaction of water with quick lime

2. Dilution of an acid

3. Evaporation of water

4. Sublimation of camphor (crystals)

A. i and ii

B. i and iv

C. ii and iii

D. iii and iv

Answer: A



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6. 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
- B. Lead Acetate
- C. Ammonium acetate
- D. Potassium Sulphate

Answer:



7. For the given question two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these question from codes (i), (ii), (iii) and (iv) as given below:

Assertion (A): In a reaction of copper oxide with hydrogen, hydrogen serves as reducing agent.

Reason (R): A substance that gains oxygen in a chemical reaction is a reducing agent.

A. Both A and R are true and R is correct explanation of the assertion.

B. Both A and R are true but R is not the correct explanation of the assertion.

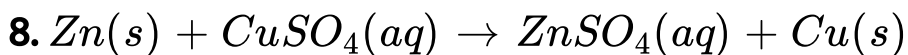
C. A is true but R is false.

D. A is false but R is true.

Answer: A



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The above equation is an example of:

A. Combination reaction

B. Displacement reaction

C. Precipitation reaction

D. Double displacement reaction

Answer: B



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9. Anu heated some lead nitrate crystals in a boiling tube. She recorded the evolution of:

A. Colourless gas

B. Odourless gas

C. Brown gas

D. Violet gas

Answer: C



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10. The chemical reaction between Calcium oxide and water is:

A. Endothermic reaction

B. Decomposition reaction

C. Exothermic reaction

D. Displacement reaction

Answer: C



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11. A student took some zinc granules a test tube and added dilute hydrochloric acid to it. A colourless, odourless gas X was evolved .The gas X is:

- A. Hydrogen
- B. Oxygen
- C. Carbon dioxide
- D. Nitrogen dioxide

Answer: A



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12. Silver chloride turns grey on exposure to sunlight for a long duration due to:

- A. the formation of silver by decomposition of silver chloride.
- B. sublimation of silver chloride
- C. formation of chlorine gas from silver chloride
- D. oxidation of silver chloride.

Answer: A



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13. What is the chemical name for rust?

- A. Ferric sulphate
- B. Ferric oxide
- C. Hydrated ferric oxide
- D. Ferric chloride

Answer: C



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Acids Bases And Salts Very Short Answer

1. Give the chemical name of compound present in tooth enamel. What is the nature of compound?



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2. Assertion: Acids should be used carefully.

Reason: All acids are corrosive.



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3. What do you understand by olfactory indicators?

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4. What is the common name of the compound $CaOCl_2$? Give its any one use.

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5. What is neutralization reaction?

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Acids Bases And Salts Short Answer

1. Name one natural source of Citric acid



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2. Name one natural source of Oxalic acid



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3. Name one natural source of Lactic acid



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4. Name one natural source of Tartaric acid



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5. How many molecules of water of crystallization are present in Copper sulphate crystals



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6. How many molecules of water of crystallization are present in Washing soda



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7. How many water molecules are present as water of crystallisation in gypsum?

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8. What are hydrated and anhydrous salts? Give one example of each.

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9. Hydrochloric acid reacts with a metal X to form a gas Y, which burns with a 'pop' sound. Sodium hydroxide solution also reacts with same metal X to

form same gas Y.

Name X and Y.

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10. Hydrochloric acid reacts with a metal X to form a gas Y, which burns with a 'pop' sound. Sodium hydroxide solution also reacts with same metal X to form same gas Y.

Which the chemical equation of reaction of metal X with HCl solution

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11. Hydrochloric acid reacts with a metal X to form a gas Y, which burns with a 'pop' sound. Sodium hydroxide solution also reacts with same metal X to form same gas Y.

Which the chemical equation of reaction of metal X with NaOH solution

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12. What is the action of litmus on Dry ammonia gas

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13. What is the action of litmus on an aqueous solution of ammonium chloride?



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14. State the observations you would make on adding sodium hydroxide to aqueous solution of ferrous sulphate. Give balanced chemical equations.



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15. State the observations you would make on adding sodium hydroxide to aqueous solution of Aluminium

chloride . Give balanced chemical equations.

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16. A white powder is added while baking breads and cakes to make them soft and fluffy. What is the name of the powder ? What are the main ingredients in it ? What are the functions of each ingredient ?

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17. Name the raw materials that are required for the manufacture of washing soda by Solvay process.

Describe the chemical reactions involved in the process.

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18. Varun took a sample A and added dilute hydrochloric acid to it. A colourless, odourless gas X was evolved which turned lime water milky.

Identify sample A and the gas X evolved. Write a chemical equation to explain the reaction between Sample A and Hydrochloric acid. Why does the gas X turn lime water milky?

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19. What is an olfactory indicator? Name two olfactory indicators. What is the effect of adding sodium hydroxide solution to these olfactory indicators?

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20. Why does dry HCl gas not change the colour of the dry litmus paper?

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21. Write a chemical equation to show the reaction of plaster of Paris with water. Give any two uses of

plaster of Paris.



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22. Parth took equal lengths of Magnesium ribbon in test tubes A & B. Sulphuric acid - is added to test tube A while acetic acid is added to test tube B. In which case would the reaction occur more vigorously and why. Write the chemical equations for reactions in test tube A.



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23. Differentiate between acidic and basic salt with an example of each case.



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24. Write the chemical formula of plaster of paris. Why should it not be left exposed to air?



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Acids Bases And Salts Long Answer

1. A white powder is used by doctors to support fractured bones.

Write the name and chemical formula of powder.

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2. A white powder is used by doctors to support fractured bones.

How is this prepared?

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3. A white powder is used by doctors to support fractured bones.

When this white powder is mixed with water a hard solid mass is obtained. Write a balanced chemical equation for the change.



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4. A white powder is used by doctors to support fractured bones.

Give one more use of this powder.



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5. Write the name and chemical formula of calcium compound used as a disinfectant. How is this compound manufactured ?



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6. What happens when a sample of sodium hydrogen carbonate is heated ? Write the equation of the reaction involved.



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7. In the electrolysis of water,

Name the gas collected at anode and cathode.



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8. In electrolysis of water,

Why is volume of gas collected at one electrode double than the other.



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9. In electrolysis of water,

What would happen if dil. H_2SO_4 is not added to

water.



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10. (i) Why does acidic solution conduct electricity?

(ii) Can basic solution conduct electricity?



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11. Give suitable reasons for the following statements:

Rain water conducts electricity but distilled water does not.



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12. Give suitable reasons for the following statements:

We feel burning sensation in the stomach when we over eat.



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13. Give suitable reasons for the following statements:

A tarnished copper vessel regains its shine when rubbed with lemon.



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14. Give suitable reasons for the following statements:

The crystals of washing soda change to white powder on exposure to air.

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15. Give suitable reasons for the following statements:

An aqueous solution of sodium chloride is neutral but an aqueous solution of sodium carbonate is basic.

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16. Explain why is hydrochloric acid a strong acid and acetic acid, a weak acid. How can it be verified?

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17. Why does an aqueous solution of an acid conduct electricity?

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18. You have four solutions A, B, C and D. The pH of solution A is 6, B is 9, C is 12 and D is 7.

(a) Identify the most acidic and most basic solutions.

(b) Arrange the above four solutions in the increasing order of H^+ ion concentration.

(c) State the change in colour of pH paper on dipping in solution C and D.

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19. A white compound Y of sodium is an active ingredient of antacids. Give the chemical name and common name of the compound Y. How is it manufactured? Give chemical equation.

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20. A white compound Y of sodium is an active ingredient of antacids. Write chemical equations to explain the manufacture of Washing soda from the compound Y. Write any two uses of washing soda.



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21. Equal lengths of Mg ribbon are taken in test tubes A and B. Hydrochloric acid is added to test tube A. While acetic acid is added to test tube B. In which case the reaction would occur more vigorously and why? Write the chemical equations for reactions in test tube A and B.

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22. Why does Honey bee sting cause pain and irritation? Give a method to get relief from the discomfort

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Acids Bases And Salts Multiple Choice Questions

1. A sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH

paper yellowish-orange. Which of the following would change the colour of this pH paper to greenish-blue ?

A. Lemon juice

B. Vinegar

C. Common salt

D. Antacid

Answer: D



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2. Which of the following salts does not contain any water of crystallisation ?

A. Blue Vitriol

B. Baking soda

C. Washing soda

D. Gypsum

Answer: B



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3. Which one of the following can be used as an acid base indicator by a visually impaired student ?

A. Litmus

B. Turmeric

C. Vanilla Essence

D. Petunia leaves

Answer: C



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4. Which of the following phenomena occur when a small amount of acid is added to water ?

(i) Ionisation

(ii) neutralisation

(iii) Dilution

(iv) Salt formation

A. i and ii

B. i and iii

C. ii and iii

D. ii and iv

Answer: B



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5. One of the constituents of baking powder is sodium hydrogen carbonate. The other constituent is :

A. Hydrochloric acid

B. Tartaric acid

C. Acetic acid

D. Sulphuric acid

Answer: B



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6. Which among the following is not a base?

A. NaOH

B. KOH

C. NH_4OH

D. C_2H_5OH

Answer: D



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7. Zinc granules on treating with an acid X, form the zinc sulphate ($ZnSO_4$) salt along with the evolution of a gas Y which burns with a pop sound when brought near to a burning candle. Identify the acid X and gas evolved Y.

A. X-Sulphuric acid and Y - Oxygen gas

B. X-Hydrochloric acid and Y - Oxygen gas

C. X - Sulphuric acid and Y- Hydrogen gas

D. X-Hydrochloric acid and Y - Hydrogen gas

Answer: C



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8. Lemons have sour taste due to presence of:

A. Acetic acid

B. Citric acid

C. Lactic acid

D. Oxalic acid

Answer: B



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9. Which of the following solutions in water does not conduct electricity?

A. Hydrochloric acid

B. Sodium chloride

C. Glucose

D. Sulphuric acid

Answer: C



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10. Which of the following salts does not contain water of crystallization?

A. Copper sulphate

B. Gypsum

C. Washing soda

D. Baking soda

Answer: D

11. Which of the following will turn Phenolphthalein pink?

A. $\text{NaOH}(\text{aq})$

B. $\text{HCl}(\text{aq})$

C. $\text{CH}_3\text{COOH}(\text{aq})$

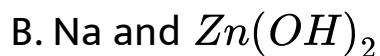
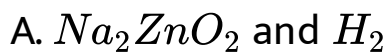
D. H_2O

Answer: A



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12. Zinc reacts with NaOH to form the following products:



Answer: A



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13. Meena rubbed the yellow coloured turmeric stain on his son's shirt with soap. She observed the colour of the stain became:

- A. pink
- B. reddish brown
- C. remained yellow
- D. white

Answer: B



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14. In which of the following solutions, would the colour of pH strip change to dark blue?

A. HCl

B. NaOH

C. Lemon juice

D. Ethanoic acid

Answer: B



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15. For the given question numbers, two statements are given one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below- (1)

Assertion: While dissolving an acid in water, the acid must always be added slowly to water with constant exothermic stirring.

Reason: Dissolving an acid in water is an exothermic reaction.

A. Both A and R are true and R is a correct explanation of the assertion.

B. Both A and R are true and R is not the correct explanation of the assertion

C. A is true but R is false

D. A is false but R is true

Answer: B



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16. The compound formed during electrolysis of brine is:

A. Cl_2

B. H_2

C. NaOH

D. NaH

Answer: C



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17. For the given question two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from codes (i), (ii), (iii) and (iv) as given below

Assertion (A): Weak acids have low electrical

conductivity

Reason (B) : Weak acids dissociate completely to produce hydrogen ions in solution.

A. Both A and R are true and R is correct explanation of the assertion.

B. Both A and R are true but R is not the correct explanation of the assertion.

C. A is true but R is false.

D. A is false but R is true.

Answer:



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Metals And Non Metals Very Short Answer

1. Assertion: Metals are malleable.

Reason: They can be easily hammered into thin sheets.



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2. Which of the following metals does not react with cold or hot water but reacts with steam?



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3. Name the metal: It does not react with any physical state of water.

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4. Why are copper and aluminium wires usually used for electricity transmission?

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5. Which of the following metals will melt at body temperature? Gallium, Magnesium, Caesium, Aluminium



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6. A mixture of Cu_2O and Cu_2S is heated. Write a balanced chemical equation.



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7. give reason for the following:

Carbonate and sulphide ores are usually converted into oxides during the process of extraction of metals.



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8. Name two metals which will displace hydrogen from dilute acids.

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9. Rohan observed that if a small piece of sodium is added to water it catches fire whereas a piece of calcium added to the water it does not catch fire. Can you explain his observations with the help of the chemical equations?

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10. Name a non-metal which is lustrous and a metal which is non-lustrous.

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11. What is anodising ? Why is it done ?

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12. When most of the metals are treated with nitric acid they do not produce hydrogen gas. Why?

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13. Mehak observed that a green coat is gradually formed on a copper plate left exposed to air in her room. Identify the chemical name of the green layer?



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Metals And Non Metals Short Answer

1. Explain any three methods used for preventing Corrosion of metals?



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2. Two Ores on Heating, A gives CO_2 , whereas ore B gives SO_2 . Explain the processes with help of balanced chemical equation, which is used to convert ores A and B into their oxide ores with an example.

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3. What are amphoteric oxides? Choose the amphoteric oxides from amongst the following oxides: Na_2O , ZnO , Al_2O_3 , CO_2 , H_2O

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4. Why is it that non-metals do not displace hydrogen from dilute acids?

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5. What are amphoteric oxides ? Choose the amphoteric oxides from the following:

Na_2O , ZnO , Al_2O_3 , CO_2 , H_2O

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6. Explain the following:

(a) Sodium chloride is an ionic compound which does

not conduct electricity in solid

state whereas it does conduct electricity in molten

state as well as in aqueous

solution.

(b) Reactivity of aluminium decrease if it is dipped in nitric acid.

(c) Metals like calcium and magnesium are never found in their free state in nature.



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7. How is mercury extracted from its sulphide ore?

Write the balanced chemical equations involved in the process.

Why are carbonate or sulphide ores converted to oxides during the process of extraction?

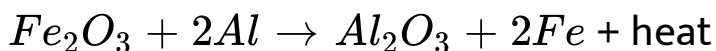
Is magnesium oxide an ionic compound or a covalent compound? Give reasons to support your answer.

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8. Al_2O_3 is an amphoteric oxide. With the help of chemical equations, explain why is it called an amphoteric oxide?

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9. Identify the reaction given below:



(b) Identify the oxidising and reducing agent in this reaction.

(c) State an application of this reaction.



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Metals And Non Metals Long Answer

1. State three reasons : sulphur is a non metal



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2. State three reasons : Magnesium is a metal

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3. Give reason for the following: Titanium is a strategic metal.

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4. Give reason for the following: Non metals do not form positively charged ions.

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5. Give reason for the following: Aluminium is a reactive metal but does not corrode easily.

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6. Properties of ionic compound

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7. Two Ores on Heating, A gives CO_2 whereas ore B gives SO_2 . Explain the processes with help of balanced chemical equation, which is used to convert ores A and B into their oxide ores with an example.



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8. When calcium metal is added to water, the gas evolved does not catch fire but the same gas evolved on adding potassium metal to water catches fire. Explain why?



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9. Name a metal for each case : It displaces hydrogen gas from nitric acid.



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10. A metal which does not react with cold water but reacts with steam.

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11. What is meant by refining of metals? Name the most widely used method of refining impure metals produced by various reduction processes. Describe with the help of a labelled diagram how this method may be used for refining of copper.

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12. What is thermite reaction? Give its one use.



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13. Write the steps involved in the extraction of pure metals in the middle of the activity series from their carbonate ores.



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14. In the electrolytic refining of a metal M, what would you take as the anode, the cathode and the electrolyte?



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15. Write chemical equations for the following reactions: Cinnabar is heated in the presence of air. Manganese dioxide is heated with aluminium powder.



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16. What is Solder? Why is it used for welding electrical wires?



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17. How do the properties of iron change when small quantity of carbon is mixed with it.

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18. A metal X present in rock salt is highly reactive and it is stored under kerosene to prevent it from catching fire. It exists in nature as XCl. Identify the metal 'X'. How can this metal be extracted from its Chloride ore, Write chemical equations to explain your answer? How is calcination different from roasting?

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Metals And Non Metals Multiple Choice Questions

1. Graphite is an allotrope of -

A. Lead

B. Carbon

C. Phosphorus

D. Sulphur

Answer: B



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2. The ability of metals to be drawn into thin wire is known as

A. Malleability

B. Ductility

C. Conductivity

D. Sonority

Answer: C



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3. The non-metal which exists as a liquid at room temperature

A. Iodine

B. Bromine

C. Nitrogen

D. Chlorine

Answer: B



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4. Assertion (A): The colour of copper sulphate solution changes when a piece of zinc is dropped in it

Reason (R): Copper is more reactive than zinc.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is true but R is false

Answer: D



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5. Assertion (A): Metals like sodium and potassium are always found in combined state in nature.

Reason (R): These metals are highly reactive.

A. Both A and R are true and R is the correct explanation of A.

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is true but R is false

Answer: A



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6. Which of the following is used for dissolution of gold ?

A. Hydrochloric acid

B. Sulphuric acid

C. Nitric acid

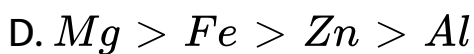
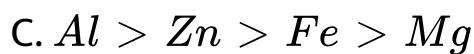
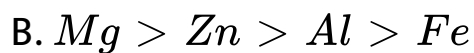
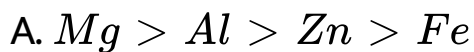
D. Aqua-Regia

Answer: D



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7. Which of the following represent the correct order of decreasing reactivity?



Answer: A



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8. In the given reaction, $Al_2O_3 + NaOH \rightarrow \dots\dots X$
 $\dots\dots + H_2O$

What is element X ?



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9. Which metal from the following can displace Zn from $ZnSO_4$ solution?

A. Lead

B. Copper

C. Magnesium

D. Silver

Answer: C



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10. Sandhya took three beakers A, B and C containing Zinc Sulphate, Silver Sulphate and Iron (II) Sulphate solutions respectively. Copper pieces were added to each beaker. The solution will appear blue in the case of:

A. Beaker A

B. Beaker B

C. Beaker C

D. Beakers-B and C

Answer: B



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Carbon Compounds Very Short Answer

1. What do you understand by monounsaturated fatty acid?



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2. What is catenation?



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3. Butter does not decolorize bromine water, where as cooking oil does, Comment



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4. Why does ethyne (acetylene) burn with a sooty flame?



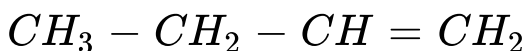
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5. Give the I.U.P.A.C. name of the following:



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6. Write the name of the following compound:



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7. How many structural isomers are possible for butane?



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8. Which of the following are alkenes?

CH_4 , C_2H_4 , C_2H_6 , C_3H_4 , C_3H_6



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9. How many covalent bonds are present in butane?



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10. A neutral compound (A) $C_3H_6O_2$ is formed by the reaction of an acid (B) which is present in ant's sting

and an alcohol (C) which is used in the preparation of tincture of iodine. Identify the compounds B and C?

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11. How many covalent bonds are there in a molecule of Ethane?

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Carbon Compounds Short Answer

1. What is denatured alcohol? Why is ethanol denatured? State any two uses of ethanol.



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2. Write the structural formula of Propanol



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3. Write the structural formula of Propanoic acid



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4. Write the structural formula of Chloropropane



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5. Write the chemical equation for the reaction that takes place when ethanol is mixed with ethanoic acid in presence of an acid.

What is the name given to such reactions?

Write any two uses of the product formed in these reactions.



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6. Name the functional group of organic compounds that can be hydrogenated. With the help of a suitable example explain the process of hydrogenation, mentioning the conditions of the reaction and any

one change in physical property with the formation of the product. Name any one natural source of organic compounds that are hydrogenated



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7. List in tabular form three physical and two chemical properties on the basis of which ethanol and ethanoic acid can be differentiated.



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8. Differentiate between saturated and unsaturated hydrocarbons.



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9. A compound has molecular formula C_2H_6O . It can be used as a fuel. Identify the name of the compound and functional group present in it. Write the reaction involved in the conversion of this compound into Ethanoic Acid.



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10. Which type of organic compounds undergo addition reaction?



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11. Mention the industrial application of addition reaction.

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12. Name the following :

Third member of alkane series

Next higher homologue of methanoic acid

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13. Define homologous series.



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14. Give reasons - Why are most carbon compounds poor conductors of electricity?



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15. Give reasons - noble gas have low melting and boiling points?



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16. What is Methane? What happens when this compound burns in oxygen?

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17. Distinguish between Ethanol and Ethanoic acid on the basis of Blue litmus test

Reaction with sodium bicarbonate

Reaction with Sodium metal

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1. What is a homologous series ? Explain with an example.

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2. Define homologous series of carbon compound. List any two characteristics of a homologous series.

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3. Explain the mechanism of the cleaning action of soaps.

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4. Write the chemical formula and name of the compound which is the active ingredient of all alcoholic drinks. List its two uses. Write chemical equation and name of the product formed when this compound reacts with-

(i) sodium metal

(ii) hot concentrated sulphuric acid



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5. An organic compound A is widely used as preservative in pickles and has a molecular formula

$C_2H_4O_2$. The compound reacts with Ethanol to form a sweet smelling compound B.

Identify the compound A Write the chemical equation for its reaction with ethanol to form compound B.

Which gas is produced when compound A reacts with sodium carbonate?

Name the sweet smelling compound B.

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6. How are soaps different from detergents?

What makes water hard?

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Carbon Compounds Multiple Choice Questions

1. Assertion: Chemical bonds in organic compounds are covalent in nature.

Reason: Covalent bond is formed by the sharing of electrons in the bonding atoms.

A. If both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion

B. If both assertion and reason are CORRECT, but reason is NOT THE CORRECT explanation of the assertion.

C. If assertion is CORRECT, but reason is
INCORRECT

D. If assertion is INCORRECT, but reason is
CORRECT

Answer: A



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2. Ester is formed by the reaction between:

A. An acid and an alcohol

B. An acid and a base

C. A base and an alcohol

D. An acid and an alkene

Answer: A



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3. Which of the following substance produces brisk effervescence with baking soda solution?

A. Ethanoic acid

B. Table salt

C. Vinegar

D. Sunflower oil

Answer: A



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4. The property of self combination of the atoms of the same element to form long chains is known as :

- A. Catenation
- B. Isomerisation
- C. Superposition
- D. Halogenation

Answer: A



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5. Butanone is a four-carbon compound with the functional group

A. carboxylic

B. aldehyde

C. Ketone

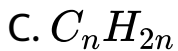
D. Alcohol

Answer: B



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6. Alkynes may be represented by the general formula:



Answer: B



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7. Identify the unsaturated compounds from the following.

(i) Propane

(ii) Propene

(iii) Propyne

(iv) Chloropropane

A. i and ii

B. ii and iv

C. iii and iv

D. ii and iii

Answer: D



8. Which one of the following green house gases is a contributor due to incomplete combustion of coal and petroleum?

- A. Oxide of nitrogen
- B. Methane
- C. Carbon mono oxide
- D. Carbon-di-Oxide

Answer: C



9. The following questions consist of two statements - Assertion (A) and Reason(R).

Answer the questions selecting the appropriate options given below:

Assertion (A) : C_2H_4 will undergo addition an reaction with hydrogen

Reason (R): C_2H_4 is unsaturated compound.



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10. The functional group present in aldehydes is -

A. $-OH$

B. $-CHO$

C. $-COOH$

D. $-COOR$

Answer: B

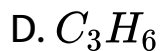
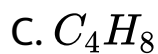


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11. Which of the following does not belong to the same homologous series -

A. C_2H_4

B. C_2H_2



Answer: B



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12. The reaction between CH_4 and chlorine in presence of sunlight is an example of-

A. Substitution reaction

B. Combination reaction

C. Addition reaction

D. Decomposition reaction

Answer: A



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13. The tendency of carbon atoms to form long chains is called -

A. Polymerisation

B. Catenation

C. Substitution

D. Bonding

Answer: B



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14. Which of the following compounds belong to the same homologous series?

(I) $C_2H_6O_2$ (II) C_3H_8O (III) C_2H_6 (IV) CH_4O

A. I and II

B. II and III

C. III and IV

D. II and IV

Answer: D



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Periodic Classification Of Elements Very Short Answer

1. Which element was named as Eka-aluminium earlier?



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2. According to which periodic law, every eight element repeat its property?



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3. An element "X" has mass number 35 and number of neutrons is 18. Identify group number and period of the element "X".

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4. How does valency vary across the period?

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5. Out of Lithium and Potassium, which one has strong metallic character and why?

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6. How does the metallic character of elements change on going from left to right in a period of the periodic table ?

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7. Which period and group of the periodic table does an element with atomic number 4 belong to?

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8. Why does Neon show extremely low reactivity?



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9. State Newlands' law of octaves.



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Periodic Classification Of Elements Short Answer

1. Two elements 'A' and 'B' have atomic numbers 11 and 19 respectively. State their position in the Modern Periodic Table.

Which element has bigger atomic radius.

What is the nature of their oxides.



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2. An element Q belongs to 3rd period and group 17 of the Modern Periodic table. Answer the following questions:

What is the valency of Q.

What is the name of the element?

Write the formula of the compound formed in the reaction of Q with sodium.



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3. The atomic number of an element is 16. Predict the number of valence electrons in its atom

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4. The atomic number of an element is 16. Predict its valency

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5. The atomic number of an element is 16. Predict its group number

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6. The atomic number of an element is 16. Predict whether it is a metal or a non-metal

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7. The atomic number of an element is 16. Predict the nature of oxide formed by it

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8. The atomic number of an element is 16. Predict the formula of its chloride



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9. F, Cl and Br are elements each having seven valence electrons. Which of these: (i) has the largest atomic radius (ii) is most reactive? Justify your answer stating reason for each.



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10. In the modern periodic table, the element calcium (atomic number = 20) is surrounded by elements with atomic numbers 12, 19, 21 and 38. Which of these

elements has physical and chemical properties resembling those of calcium and why?

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11. How does the metallic character of elements change on going from left to right in a period of the periodic table ?

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12. Can the following groups of elements be classified as Dobereiner's triad:

(a) Na, Si, Cl

(b) Be, Mg, Ca

Atomic

mass

of

$Be - 9, Na - 23, Mg - 24, Si - 28, Cl - 35, Ca - 40.$

Justify your answer in

each case.



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13. An atom has electronic configuration 2, 8, 7. (a)

What is the atomic number of this element?

(b) To which of the following elements would it be chemically similar? (Atomic numbers are given in parentheses.)

N(7) F(9) P(15) Ar(18)



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14. The electronic configuration of an element is 2, 8, 4. State its,
(a) group and period in the Modern Periodic Table. (b) name and write its one physical property.



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15. How it can be proved that the basic structure of the Modern Periodic Table is based on the electronic configuration of atoms of different elements?



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16. Name the element which has one shell only which is completely filled with electrons. Twice as many electrons in second shell as in first shell. A total of three shells, with 3 electrons in valence shell.

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17. Nitrogen (atomic number 7) and phosphorus (atomic number 15) belong to group 15 of the Periodic Table. Write the electronic configuration of these two elements. Which of these will be more electronegative? Why?

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18. Give reasons -

K atom is bigger than Na atom even though both these elements belong to same group.

The metallic character of elements increases as we move down a group.

Mg atom is smaller than Na even though these elements belong to same period.

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19. An element X belongs to group 17 and third period of the periodic table

Write electronic configuration of the element. What is its valency?



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20. An element X belongs to group 17 and third period of the periodic table

Predict its nature, whether it is metal or a non metal.

Give reason.



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21. An element X belongs to group 17 and third period of the periodic table

Give the formula of the compound formed when it combines with an element Y having valency three?



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22. Arrange the following elements in the increasing order of their:

(i) atomic radii

(ii) non metallic character. Give reason for your answer.

Li, Be, F, N



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Periodic Classification Of Elements Long Answer

1. Which important property did Mendeleev use to classify the elements in his periodic table and did he stick to that?



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2. State Mendeleev's periodic law.



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3. Why could no fixed position be given to hydrogen in Mendeleev's periodic table?

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4. State how atomic size varies from left to right in a period and from top to bottom in a group .

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5. Atoms of eight elements A, B, D, E, F, G and H have the same number of electronic shells but different number of electrons in their outermost shell. It was

found that elements A and G combine to form an ionic compound. This compound is added in a small amount to almost all vegetable dishes during cooking. Oxides of elements A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions: To which group or period of the periodic table, do the listed elements belong?



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6. Atoms of eight elements A, B, D, E, F, G and H have the same number of electronic shells but different

number of electrons in their outermost shell. It was found that elements A and G combine to form an ionic compound. This compound is added in a small amount to almost all vegetable dishes during cooking. Oxides of elements A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions: What would be the nature of compound formed by a combination of elements B and F?



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7. Atoms of eight elements A, B, D, E, F, G and H have the same number of electronic shells but different number of electrons in their outermost shell. It was found that elements A and G combine to form an ionic compound. This compound is added in a small amount to almost all vegetable dishes during cooking. Oxides of elements A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions: Which two of these elements could definitely be metals?



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8. Atoms of eight elements A, B, D, E, F, G and H have the same number of electronic shells but different number of electrons in their outermost shell. It was found that elements A and G combine to form an ionic compound. This compound is added in a small amount to almost all vegetable dishes during cooking. Oxides of elements A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions: Which one of the eight elements is most likely to be found in gaseous state at room temperature?



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9. Atoms of eight elements A, B, D, E, F, G and H have the same number of electronic shells but different number of electrons in their outermost shell. It was found that elements A and G combine to form an ionic compound. This compound is added in a small amount to almost all vegetable dishes during cooking. Oxides of elements A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions: If the number of electrons in the outermost shell of element C and G be 3 and 7 respectively, write the formula of the compound formed by the combination of C and G.



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10. Why do we classify elements?

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11. What were the criteria used by Mendeléeв in creating his Periodic Table?

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12. Why did Mendeleev leave some gaps in his Periodic Table?

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13. In Mendeleev's periodic table, why were noble gases like helium, neon and argon not mentioned?



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14. Would you place the two isotopes of chlorine, Cl-35 and Cl-37 in different slots because of their different atomic masses or in the same slot because their chemical properties are the same? Justify your answer.



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15. The Modern periodic table has been evolved through the early attempts of Dobereiner, Newland and Mendeleev. List one advantage and one limitation of all the three attempts.



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16. State Modern periodic law.



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17. Name the scientist who first of all showed that atomic number of an element is a more fundamental

property than its atomic mass.



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18. Two elements X and Y have atomic numbers 19 and 17 respectively. Give their electronic configuration. To which period and group of modern periodic table do these two elements belong?

What type of bond will be formed between them?

Also give the chemical formula of the compound formed.



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19. How does the atomic radius change as we go:

(i) from left to right in a period

(ii) down a group in the periodic table

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20. Two elements X and Y have atomic numbers 12 and 16 respectively. Write the electronic configuration for these elements. To which period of the modern periodic table do these two elements belong ? What type of bond will be formed between them and why ?

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21. An element placed in Group 14 and 2nd period of the Periodic Table, burns in the presence of oxygen to form an acidic oxide.

Identify the element.



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22. An element placed in Group 14 and 2nd period of the Periodic Table, burns in the presence of oxygen to form an acidic oxide.

State the electronic configuration and atomic number of the element.



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23. An element placed in Group 14 and 2nd period of the Periodic Table, burns in the presence of oxygen to form an acidic oxide.

Write the balanced equations to show its burning in the presence of air and the reaction of its oxide with water.



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24. Priya took an element X which is a yellow solid at room temperature and shows catenation. X also forms two oxides which are also formed during the

thermal decomposition of ferrous sulphate crystals.

Identify the element X.

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25. Priya took an element X which is a yellow solid at room temperature and shows catenation. X also forms two oxides which are also formed during the thermal decomposition of ferrous sulphate crystals.

Write the electronic configuration of X.

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26. Priya took an element X which is a yellow solid at room temperature and shows catenation. X also forms two oxides which are also formed during the thermal decomposition of ferrous sulphate crystals.

Write the balanced chemical equation for the thermal decomposition of ferrous sulphate crystals.



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27. Priya took an element X which is a yellow solid at room temperature and shows catenation. X also forms two oxides which are also formed during the thermal decomposition of ferrous sulphate crystals.

What would happen when a pinch of X is added to carbon disulphide liquid?

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28. Priya took an element X which is a yellow solid at room temperature and shows catenation. X also forms two oxides which are also formed during the thermal decomposition of ferrous sulphate crystals. Locate the position of the element in the Modern Periodic table?

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29. How does the atomic radius change as we go: (i) from left to right in a period (ii) down a group in the periodic table



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30. Two elements A and B have atomic numbers 11 and 17 respectively. Answer the questions based on the statement given above.

(i) Write the electronic configuration for these elements.

(ii) To which period of the modern periodic table do these two elements belong? Give reason for your

answer.

(iii) What type of bond would be formed between them and why?



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Periodic Classification Of Elements Multiple Choice Questions

1. The electronic configuration of an element M is 2,8,4. In modern periodic table, the element M is placed in

A. 4th group

B. 2nd group

C. 14th group

D. 18th group

Answer: C



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2. Element X forms a chloride with the formula XCl_2 , which is a solid with a high melting point. X would most likely be in the same group of the Periodic Table as

A. Na

B. Mg

C. Al

D. Si

Answer: B



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3. Elements P, Q, R and S have atomic numbers 11, 15, 17 and 18 respectively, Which of them are reactive non-metals?

A. P and Q

B. P and R

C. Q and R

D. R and S

Answer: C



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4. Which of the following elements will form an acidic oxide ?

A. An element with atomic number 7

B. An element with atomic number 3

C. An element with atomic number 12

D. An element with atomic number 19

Answer: A



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5. Three elements B, Si and Ge are

A. metal

B. non-metals

C. metalloids

D. metals, non-metals and metalloids

Answer: C



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6. The valency of an element with atomic number 8 is :

A. 7

B. 6

C. 2

D. 1

Answer: C



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7. An element X makes an oxide with the formula X_2O_3 . This element will be in the same group as:

A. Na

B. Mg

C. Al

D. Cl

Answer: C



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8. Assertion: Potassium has a bigger atomic radius than Lithium

Reason :Atomic radius decreases along a period

A. Both A and R are true and R is correct explanation of the assertion.

B. Both A and R are true but R is not the correct explanation of the assertion.

C. A is true but R is false.

D. A is false but R is true.

Answer: B



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9. An element lies in third period and second group of the periodic table. Select the false statement about the atom of this element.

A. It has three valence electrons

B. It has three shells

C. It has two valence electrons

D. It has 12 electrons

Answer: A



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10. Which of the following statements about the modern periodic table is correct ?

- A. It has horizontal rows called periods
- B. It has 7 vertical columns called periods
- C. It has 18 vertical columns called groups
- D. It has seven horizontal rows called groups

Answer: C



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11. Assertion: Elements belonging to the same group show similarity in chemical properties.

Reason: Elements of the same group have same number of valence electrons.

A. Both A and R are true and R is correction explanation of the assertion.

B. Both A and R are true and R is not the correct explanation of the assertion

C. A is true but R is false

D. A is false but R is true

Answer: A



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12. Arrange the following atoms in the ascending order of atomic radius

A. F,Cl,O,C

B. C,O,F,Cl

C. O,C,F,Cl

D. F,O,C,Cl

Answer: D



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13. Which of the following elements does not lose an electron easily ?

A. Na

B. F

C. Mg

D. Al

Answer: B



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