CHEMISTRY

BOOKS - OSWAL PUBLICATION

NEW CHAPTERS AND QUESTIONS BASED ON LATEST TYPOLOGIES INTRODUCED BY CBSE FOR 2021-22 EXAMINATION

Chemical Reactions Visual Case Based Questions

1. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.

The substance not likely to contain $CaCO_3$ is

A. Dolomite

B. A marble statue

C. Calcined gypsum

D. Sea shells

Answer: C

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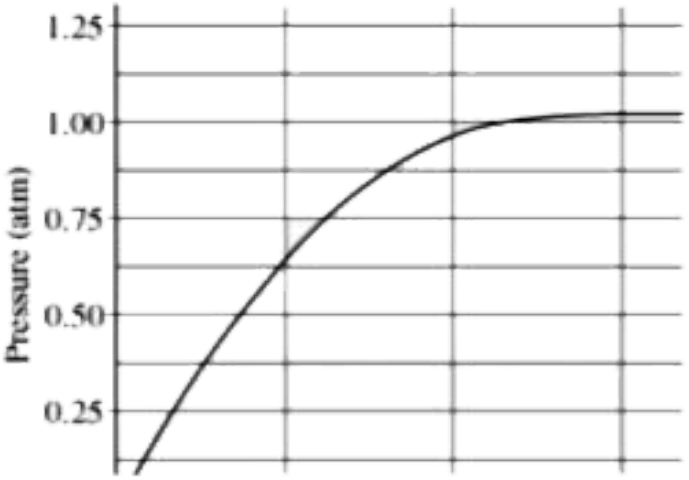
2. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from

hand-held sculptures to massive pillars and buildings.

A student added 10g of calcium carbonate in a rigid container, secured it tightly and started to heat it. After some time, an increase in pressure was observed, the pressure reading was then noted at intervals of 5 mins and plotted against time, in a graph as shown below. During which time interval did maximum decomposition took place?



A. 15-20 min

B. 10-15 min

C. 5-10 min

D. 0-5 min

Answer: D

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3. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.

Gas A, obtained above is a reactant for a very important biochemical process which occurs in the presence of sunlight. Identify the name of the process

A. Respiration

B. Photosynthesis

C. Transpiration

D. Photolysis

Answer: B

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4. In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide.

$ZnO + C \rightarrow Zn + CO$

Which of the following statement is correct ?

A. Oxidation is loss of electrons and reduction is gain of electrons.

B. Oxidation is gain of electrons and reduction is loss of electrons.

C. Oxidation is loss of protons and reduction is gain electrons.

D. Oxidation is loss of electrons and reduction is gain protons.

Answer: A

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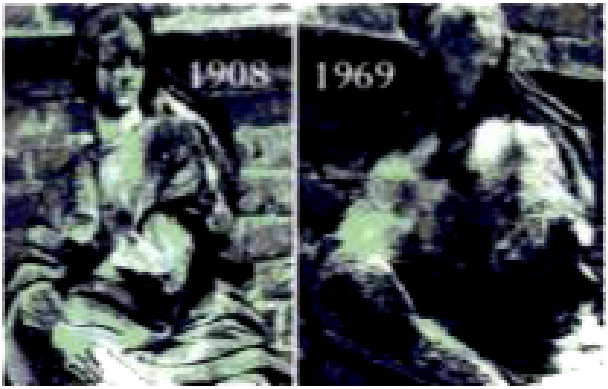
Chemical Reactions Visual Case Based Questions

1. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.

Marble statues are corroded or stained rain water. Identify the main reason



A. decomposition of calcium carbonate to calcium oxide

B. polluted water is basic in nature hence it reacts with calcium carbonate

C. polluted water is acidic in nature

D. calcium carbonate dissolves in water to give calcium hydroxide.

Answer: B

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2. Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.

Calcium oxide can be reduced to calcium, by heating with sodium metal. Which compound would act as an oxidizing agent in the above process

A. sodium

B. sodium oxide

C. calcium

D. calcium oxide

Answer: D

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3. Chemistry in Automobiles:

Foran internal combustion engine to move a vehicled own the road, it must convert the energy stored in the fuel into mechanical energy to Ans. drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:

$2C_8H_{18}(l) + 25O_2(g) \rightarrow 16'X' + 18'Y$

Which of the following are the products obtained from the reaction mentioned in the above case? Product 'X' Product 'Y'

A. $CO_2 \quad H_2O$

B. $H_2O \quad CO$

C. $CH_3 \quad H_2O$

D. $CO_2 \quad H_2O$

Answer: D

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4. For an internal combustion engine to move a vehicle down the road ,it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:

$2C_8H_{18}(l) + 25O_2(g) \rightarrow 16\,'x\,'$

Identify the types of chemical reaction occurring during the combustion of fuel

A. Oxidation & Endothermic reaction

B. Decomposition & Exothermic reaction

C. Oxidation & Exothermic reaction

D. Combination & Endothermic reaction

Answer: C

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5. For an internal combustion engine to move a vehicle down the road ,it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:

$2C_8H_{18}(l) + 25O_2(g) \rightarrow 16'x'$

On the basis of evolution/absorption of energy, which of the following processes are similar to combustion of fuel?

(a) Photosynthesis in plants

(b)Respiration in the human body

(c) Decomposition of vegetable matter

(d) Decomposition of ferrous sulphate .

A. (2) & (3)

B. (1) & (2)

C. (3) & (4)

D. (2) & (1)

Answer: A

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6. For an internal combustion engine to move a vehicle down the road,it must convert the energy stored in the fuel into mechanical energy to drive the wheels. In your car,the distributor and battery provide this

starting energy by creating an electrical "spark",which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:

$2C_8H_{18}(l) + 25O_2(g) \rightarrow 16'x'$

'A student while walking on the road observed that a cloud of black smoke belched out from the exhaust stack of moving trucks on the road.'

Choose the correct reason for the production of black smoke:

A. Limited supply of air leads to incomplete combustion of fuel.

B. Rich supply of air leads to complete combustion of fuel.

C. Rich supply of air leads to a combination reaction.

D. Limited supply of air leads to complete combustion of fuel.

Answer: A

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7. Chemistry in Automobiles:

Foran internal combustion engine to move a vehicled own the road, it

must convert the energy stored in the fuel into mechanical energy to Ans. drive the wheels. In your car, the distributor and battery provide this starting energy by creating an electrical "spark", which helps in combustion of fuels like gasoline. Below is the reaction depicting complete combustion of gasoline in full supply of air:

$2C_8H_{18}(l) + 25O_2(g) \rightarrow 16'X' + 18'Y$

'Although nitrogen is the most abundant gas in the atmosphere, it does not take part in combustion'. Identify the correct reason for this statement.

A. Nitrogen is a reactive gas

B. Nitrogen is an inert gas

C. Nitrogen is an explosive gas

D. Only hydrocarbons can take part in combustion

Answer: B

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8. In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide.

$ZnO + C \rightarrow Zn + CO$

Which of these substances is getting oxidized ?

A. C is getting oxidized to CO

B. ZnO is getting oxidised to Zn

C. No substance is getting oxidised

D. CO is getting oxidised

Answer: A

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9. In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide.

$ZnO + C \rightarrow Zn + CO$

The substance getting reduced is _____

A. C is getting reduced to CO

B. ZnO is getting reduced to Zn

C. No substance is getting redused

D. CO is getting redused

Answer: B

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10. In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide.

$ZnO + C \rightarrow Zn + CO$

Name the type of reaction taking place.

A. Combination reaction

B. Decomposition reaction

C. Neutralisation reaction

D. Redox reaction

Answer: D

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11. In the following chemical reaction "zinc oxide reacts with carbon to produce zinc metal and carbon monoxide.

$ZnO + C \rightarrow Zn + CO$

Which of the following is another example of similar type of reaction?

A. $2AgCl(s) \xrightarrow{\text{Sunlight}} 2Ag(s) + Cl_2$

B. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

C. $C(s) + O_2(g) \rightarrow CO_2$

D. $CuO + H_2 \rightarrow Cu + H_2O$

Answer: D

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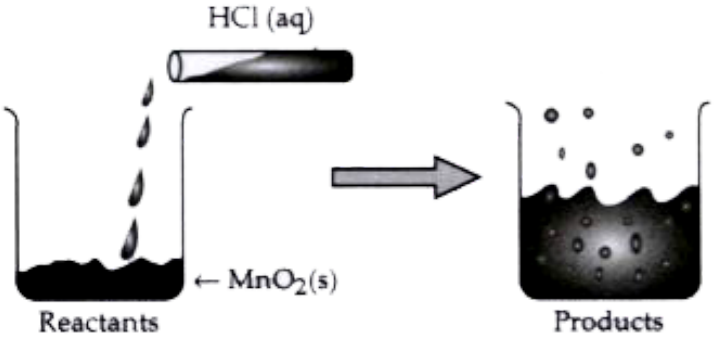
Acids Bases And Salts Visual Case Based Questions

1. Read the following and answer any four questions from (i) to (v) :



The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released. The chemical reaction between MnO_2 and HCl is an example of :

A. displacement reaction

B. combination reaction

C. redox reaction

D. decomposition reaction

Answer: C

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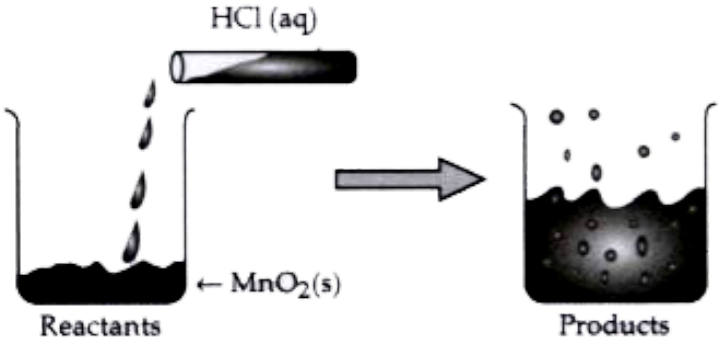
2. Read the following and answer any four questions from (i) to (v) :



The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released. Chlorine gas reacts with _____ to form bleaching powder.

A. dry $Ca(OH)_2$

B. dil. Solution of $Ca(OH)_2$

C. conc. Solution of $Ca(OH)_2$

D. dry CaO

Answer: A

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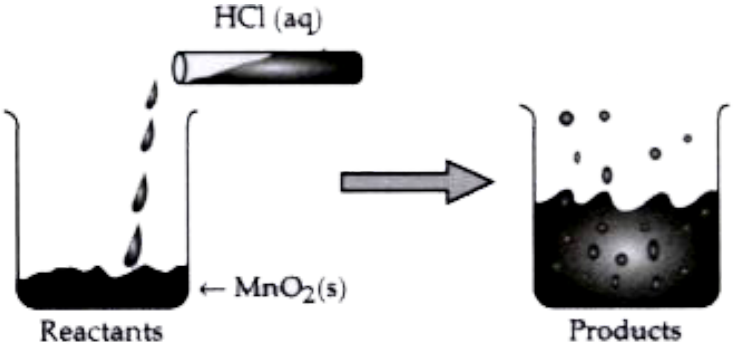
3. Read the following and answer any four questions from (i) to (v) :



The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released. Identify the correct statements from the following :

A. MnO_2 is getting reduced whereas HCl is getting oxidized

B. MnO_2 is getting oxidized whereas HCl is getting reduced.

C. MnO_2 and HCl both are getting are reduced.

D. MnO_2 and HCl both are getting oxidized.

Answer: A

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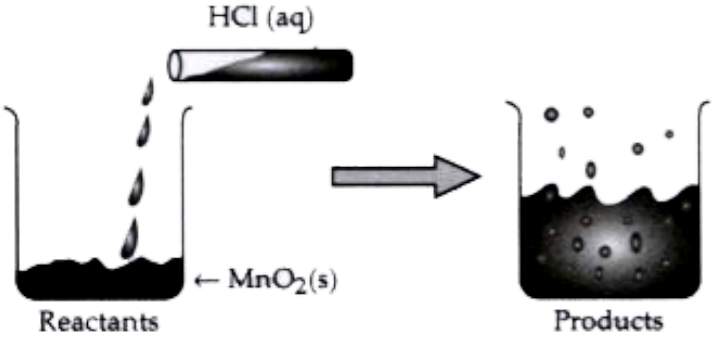
4. Read the following and answer any four questions from (i) to (v) :



The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released.

In the above discussed reaction, what is the nature of MnO_2 ?

A. Acidic oxide

B. Basic oxide

C. Neutral oxide

D. Amphoteric oxide

Answer: B

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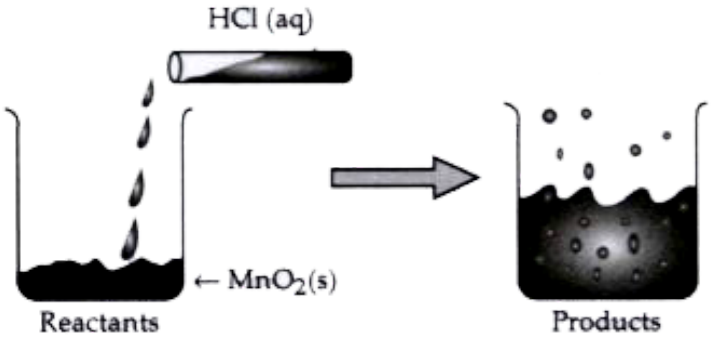
5. Read the following and answer any four questions from (i) to (v) :



The reaction between MnO_2 with HCl is depicted in the following diagram. It was observed that a gas with bleaching abilities was released. What will happen if we tak dry HCl gas instead of a aqueous solution of HCl ?

A. Reaction will occur faster.

B. Reaction will not occur.

C. Reaction rate will be slow.

D. Reaction rate will remain the same.

Answer: B

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6. Frothing in Yamuna:

The primary reason behind the formation of the toxic foam is high phosphate content in the wastewater because of detergents used in dyeing industries, dhobi ghats and households .Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as there is no oxygen in it for aquatic life to survive.

Predict the pH value of the water of river Yamuna if the reason for froth is high content of detergents dissolved in it

A. $10 - 11$

B. $5 - 7$

C. $2 - 5$

D. 7

Answer: A

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7. Frothing in Yamuna:

The primary reason behind the formation of the toxic foam is high phosphate content in the wastewater because of detergents used in dyeing industries, dhobi ghats and households .Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as there is no oxygen in it for aquatic life to survive.

Which of the following statements is correct for the water with detergents dissolved in it?

A. low concentration of hydroxide ion (OH^-) and high concentration of hydronium ion (H_3O^+).

B. high concentration of hydroxide ion (OH^-) and low concentration of hydronium ion (H_3O^+).

C. high concentration of hydroxide ion (OH^-) as well as hydronium ion (H_3O^+).

D. equal concentration of both hydroxide ion (OH^-) and hydronium ion (H_3O^+).

Answer: B

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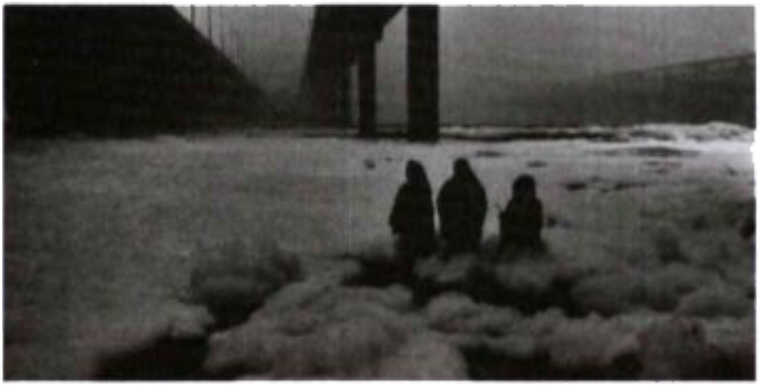
8. Read to the following and answer any four questions from (i) to (v) :

The primar reason behind the formation of the toxic foam is high phosphate content in the wastewater because of detergents used in dyeing industries, dhobi ghat Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as so there is no oxygen in it for aquatic life to surive.



The table provides the pH value of four solutions P, Q, R and S

Solution	pH value
P	2
Q	9
R	5
S	11

Which of the following correctly represents the solutions in increasing order of their hydronium ion concentration ?

A. $P > Q > R > S$

B. $P > S > Q > R$

C. $S < Q < R < P$

D. $S < P < Q < R$

Answer: C

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9. Frothing in Yamuna:

The primary reason behind the formation of the toxic foam is high

phosphate content in the wastewater because of detergents used in dyeing industries, dhobi ghats and households .Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as there is no oxygen in it for aquatic life to survive.

High content of phosphate ion in river Yamuna may lead to:

A. decreased level of dissolved oxygen and increased growth of algae

B. decreased level of dissolved oxygen and no effect of growth of algae

C. increased level of dissolved oxygen and increased growth of algae

D. decreased level of dissolved oxygen and decreased growth of algae

Answer: A

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10. Frothing in Yamuna:

The primary reason behind the formation of the toxic foam is high phosphate content in the wastewater because of detergents used in dyeing industries, dhobi ghats and households .Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as there is no oxygen in it for aquatic life to survive.

If a sample of water containing detergents is provided to you, which of the following methods will you adopt to neutralize it?

A. Treating the water with baking soda

B. Treating the water with vinegar

C. Treating the water with caustic soda

D. Treating the water with washing soda

Answer: B

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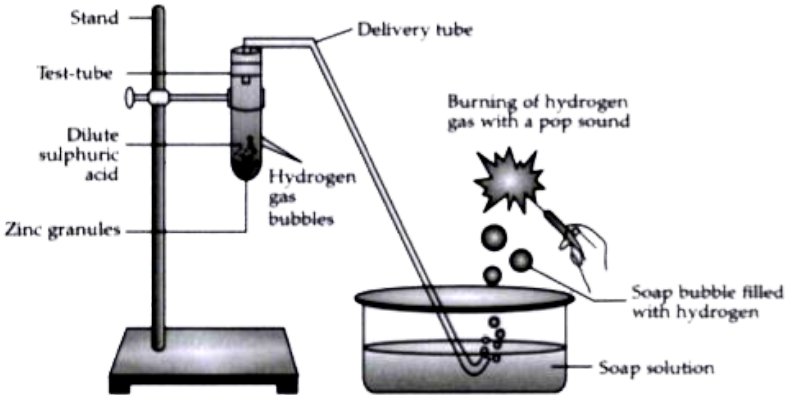
11. Study the given experimental set-up and answer any four questions from (i) to (v) given below.



The above experimental set up shows reactions between metal and _____.

A. Acid

B. Metal carbonate

C. Metal hydrogen carbonate

D. Base

Answer: A

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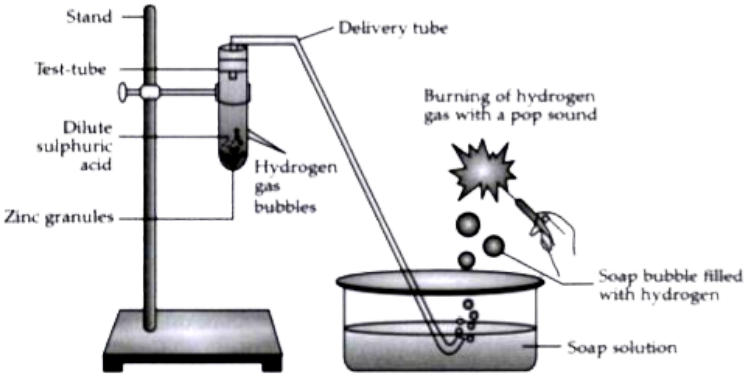
12. Study the given experimental set-up and answer any four questions from (i) to (v) given below.



Which gas is liberated during the process ?

A. Hydrogen gas

B. Carbon dioxide gas

C. Sulphur dioxide gas

D. Hydrogen sulphide gas

Answer: A

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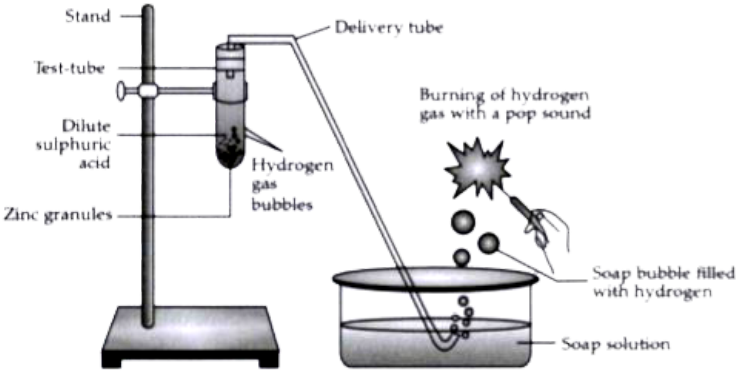
13. Study the given experimental set-up and answer any four questions from (i) to (v) given below.



Identify the balanced chemical equation for the given reaction.

A. $Zn(l) + 2H_2SO_{40\,(l)} \rightarrow ZnSO_4(s) + H_2(l)$

B. $Zn(s) + H_2SO_4(aq) \rightarrow ZnSO_4(aq) + H_2 \uparrow$

C. $Zn(s) + H_2SO_4(aq) \rightarrow ZnSO_4(aq) + H_2 \uparrow$

D. $2Zn(aq) + 2H_2SO_4(l) \rightarrow 2ZnSO_4(s) + 2H_2(l)$

Answer: C

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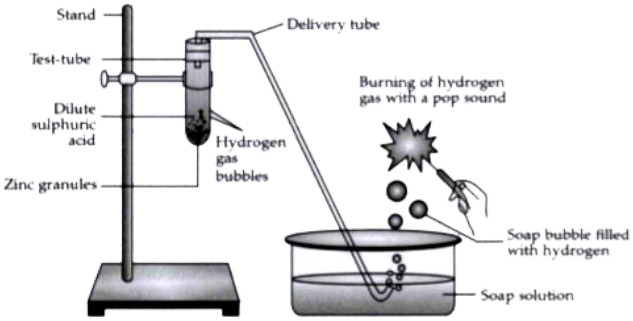
14. Study the given experimental set-up and answer any four questions from (i) to (v) given below.



What will happen if NaOH is used in place of dil. sulphuric acid and the test tube is heated ?

A. It will produce sodium sulphate and hydrogen gas.

B. It will produce sodium zincate (salt) and carbon dioxide gas

C. It will produce sodium sulphate and carbon dioxide gas.

D. It will produce sodium zincate (salt) and hydrogen gas.

Answer: D

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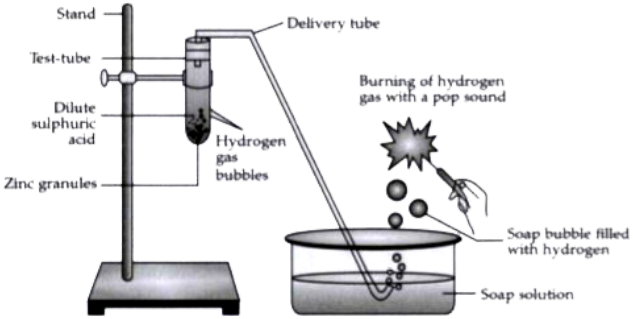
15. Study the given experimental set-up and answer any four questions from (i) to (v) given below.



How will you test for the gas evolved ?

A. Bring a glowing splint near test tube, it will reignite.

B. Place a piece of moist litmus paper in a test tube of this gas, it turns red.

C. Bring a burning splint near the opening of a test tube containing this gas, a popping sound occurs.

D. Smell the gas, it produces smell of rotten eggs.

Answer: C

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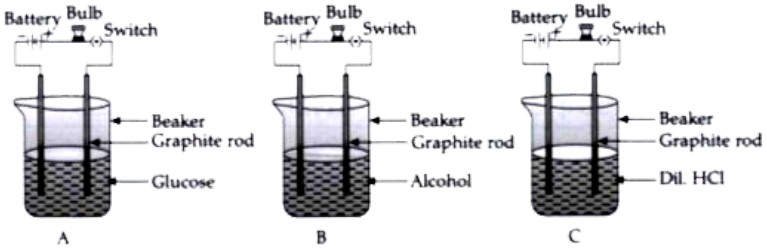
16. Observe the following diagram and answer any four questions from (i) and (v) given below.

During an experiment, Rehana took three beakers A, B and C filled with aqueous solutions of glucose, alcohol and hydrochloric acid respectively as shown in the following figure :



Which of the following statements is correct in terms of glowing of bulb when the switch of ON ?

A. Bulb A and B do not glow but bulb C glows.

B. Bulb A and C do not glow but bulb B glows.

C. None of the bulb glow.

D. All the bulb glow.

Answer: A

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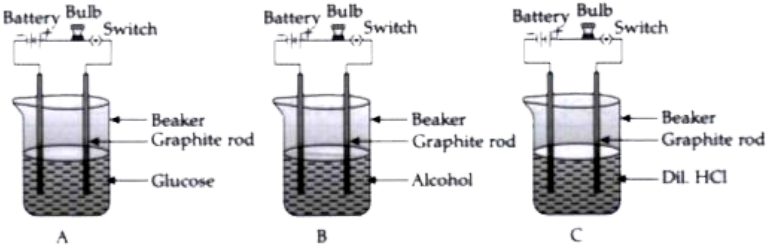
17. Observe the following diagram and answer any four questions from (i) and (v) given below.

During an experiment, Rehana took three beakers A, B and C filled with aqueous solutions of glucose, alcohol and hydrochloric acid respectively as shown in the following figure :



If the property of ion formation is considered, which of the following options is correct ?

A. Glucose and alcohol solutions do not conduct electricity as they do not have ions.

B. Dil HCl contains ions so the flow of ions is responsible for the flow of current.

C. Options (a) and (b) both are correct.

D. None of the options is correct

Answer: C

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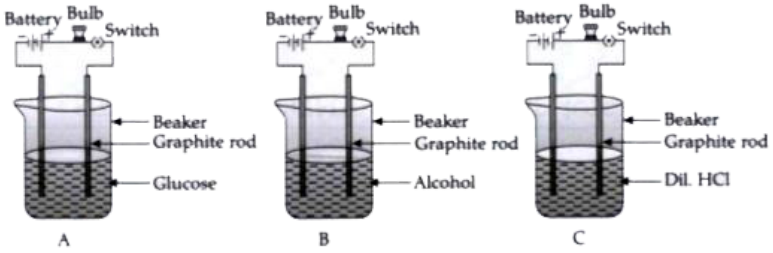
18. Observe the following diagram and answer any four questions from (i) and (v) given below.

During an experiment, Rehana took three beakers A, B and C filled with aqueous solutions of glucose, alcohol and hydrochloric acid respectively as shown in the following figure :



Which of the following (major ions) are present in a dilute aqueous solution of hydrochloric acid ?

A. $H_3O^+ + Cl^-$

B. $H_3O^+ + OH^-$

C. $Cl^- + OH^-$

D. Unionized HCl

Answer: A

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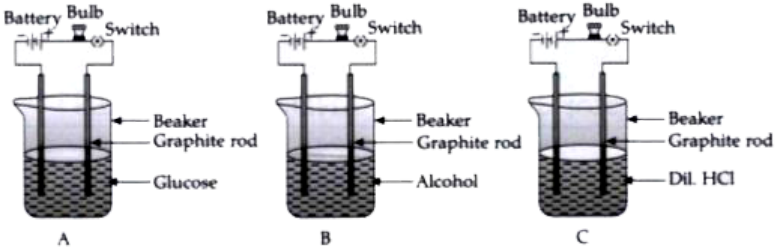
19. Observe the following diagram and answer any four questions from (i) and (v) given below.

During an experiment, Rehana took three beakers A, B and C filled with aqueous solutions of glucose, alcohol and hydrochloric acid respectively as shown in the following figure :



What change will be noticed if the content of beaker B is replaced by sodium hydroxide solution ?

A. All the bulbs glow

B. None of the bulbs glow

C. Bulb does not glow in B

D. Bulb glows in B.

Answer: D

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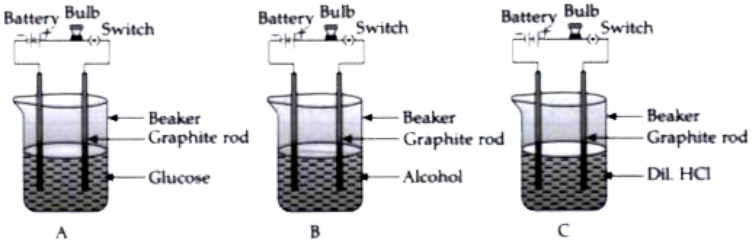
20. Observe the following diagram and answer any four questions from (i) and (v) given below.

During an experiment, Rehana took three beakers A, B and C filled with aqueous solutions of glucose, alcohol and hydrochloric acid respectively as shown in the following figure :



Though the compounds such as glucose and alcohol have hydrogen

atoms in their molecules yet they are not categorised as acids. It be because :

A. As glucose and alcohol do not produce H^+ ions, when dissolved in water.

B. As glucose and alcohol produce H^+ ions, when dissolved in water

C. They both are ionic compounds.

D. None of these

Answer: A

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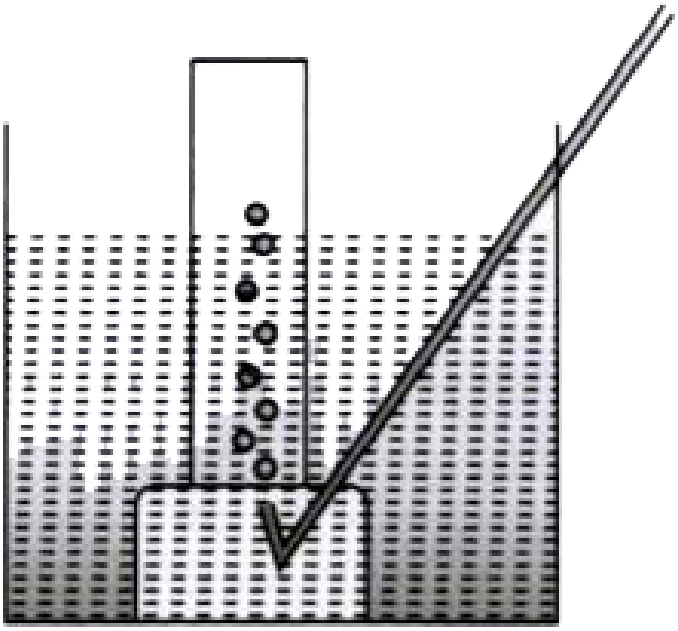
21. Observe the following diagram and answer any four questions from (i) and (v) given below.

A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure :



Identify the gas evolved.

A. Hydrogen gas

B. Carbon dioxide gas

C. Nitrogen gas

D. Sulphur dioxide gas

Answer: A

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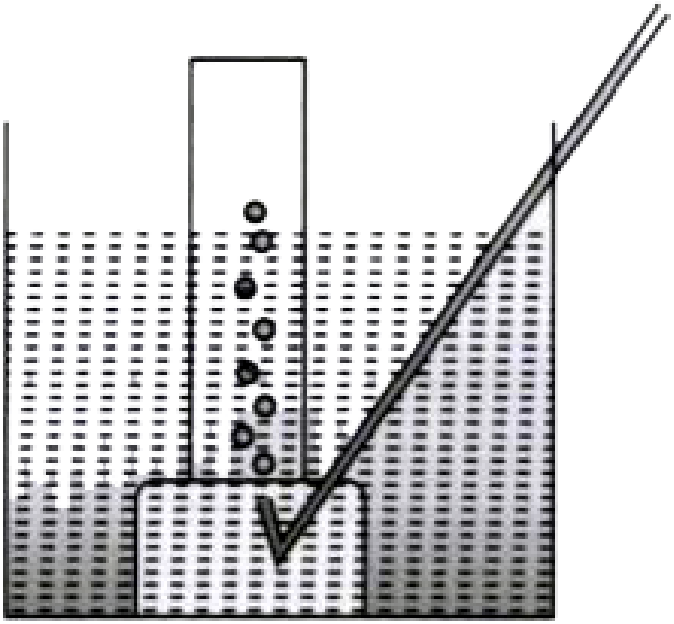
22. Observe the following diagram and answer any four questions from (i) and (v) given below.

A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure :



Which of the following statement is correct about the gas ?

A. It is heavier than air

B. It is higher than air

C. It is as heavy as air

D. All of the above

Answer: B

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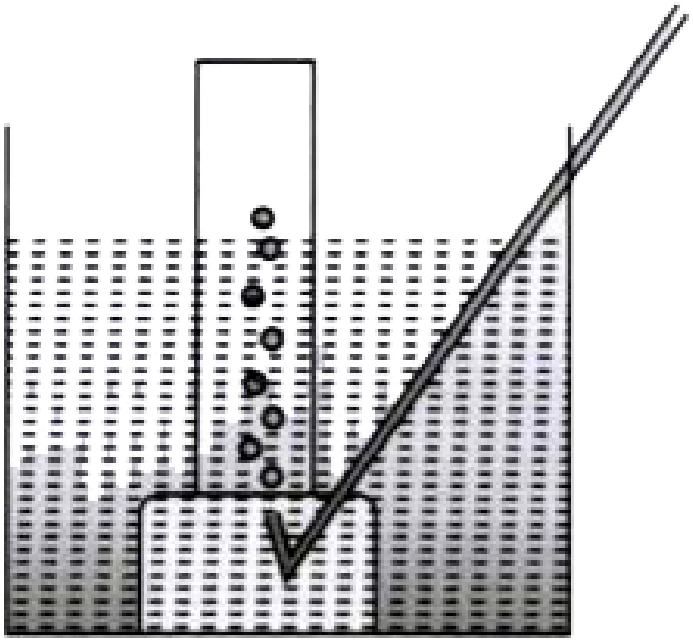
23. Observe the following diagram and answer any four questions from (i) and (v) given below.

A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure :



How will you test for the gas evolved ?

A. Bring a glowing splint near test tube, it will reignite.

B. Place moist litmus paper in a test tube of this gas, it turns red.

C. Bring a burning splint near the opening of a test tube containing this gas, a popping sound occurs.

D. Using universal litmus solution.

Answer: C

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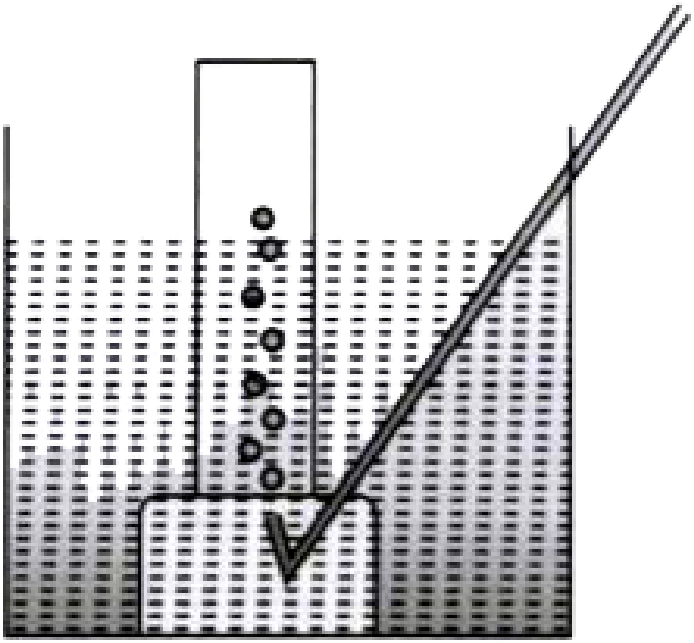
24. Observe the following diagram and answer any four questions from (i) and (v) given below.

A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure :



If the metal used above is zinc then the chemical equation for the evolution of gas is :

A. $Zn(s) + H_2SO_4(dil) \rightarrow ZnSO_4(aq) + H_2(g) \uparrow$

B. $2Zn(s) + H_2SO_4(dil) \rightarrow 2ZnSO_4(aq) + H_2(g) \uparrow$

C. $2Zn(s) + 2H_2SO_4(dil) \rightarrow ZnSO_4(aq) + 2H_2(g) \uparrow$

D. $2Zn(s) + 2H_2SO_4(dil) \rightarrow 2ZnSO_4(aq) + 2H_2(g) \uparrow$

Answer: A

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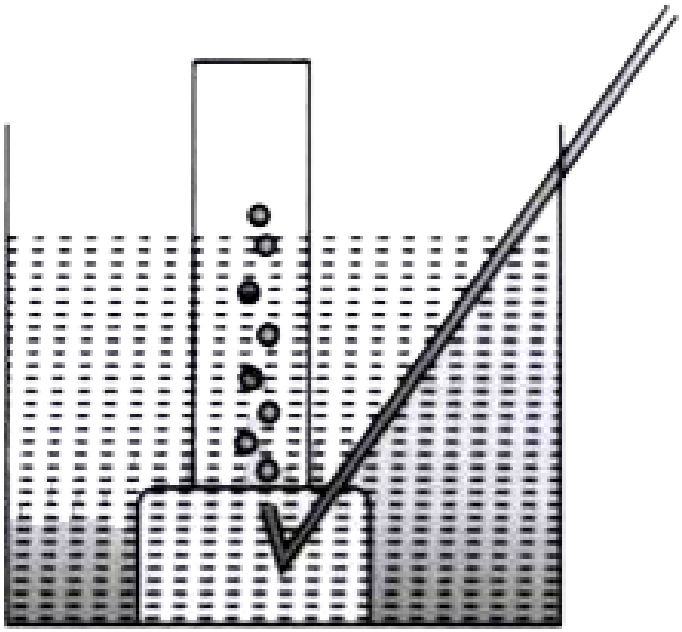
25. Observe the following diagram and answer any four questions from (i) and (v) given below.

A metal is treated with dilute sulphuric acid. The gas evolved is collected by the method shown in the figure :



An industrial use of the gas evolved is :

A. In paints and varnishes

B. In making of gold jewellery

C. To join railway tracks or cracked machine parts

D. As fuel in rockets

Answer: D

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Metals And Non Metals Self Assessment Objective Type Questions A Multiple Choice Questions

1. Elements or compounds which occur naturally in the earth's crust is known as:

A. Metallurgy

B. Minerals

C. Ore

D. Gangue

Answer:

Watch Video Solution

2. In electrolytic refining of copper:

A. Impure metal is used as cathode.

B. Strip of pure metal is used as cathode

C. Soluble salt of metal is used as electrode.

D. Anode mud does not contain precious metals like gold and silver

Answer:

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3. In a thermite reaction, a compound of iron reacts with

A. Aluminium

B. Zinc

C. Copper

D. Silver

Answer:

Watch Video Solution

Metals And Non Metals Self Assessment Objective Type Questions B Assertion And Reason Type Questions

1. Assertion : Carbon is used for reducing aluminium from aluminium oxide.

Reason : In a Aluminium has greater affinity for oxygen than for carbon.

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

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

C. Assertion (A) is true but reason (R) is false.

D. Assertion (A) is false but reason (R) is true.

Answer:

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2. Assertion : In a thermite reaction, a compound of iron reacts with a metal.

Reason: The metal used in this reaction is sodium.

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

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

C. Assertion (A) is true but reason (R) is false.

D. Assertion (A) is false but reason (R) is true.

Answer:

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Metals And Non Metals Self Assessment C Very Short Answer Type Questions

1. Name the constituent metals of bronze.

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2. List any two properties of alloys that make them useful over pure metals?

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3. Why is copper vessel covered with a green coating in rainy season?

Watch Video Solution

Metals And Non Metals Self Assessment Short Answer Type Questions

1. What is Cinnabar ? How is a metal extracted from cinnabar ? Explain briefly.

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2. Explain the formation of ionic compound Cao with electron dot structure. Atomic number of calcium and oxygen are 20 and 8 respectively.

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3. Name the constituent metals of bronze.

Watch Video Solution

Metals And Non Metals Self Assessment Long Answer Type Questions

1. Metal X is found in nature as its sulphide XS. It is used in the galvanisation of iron articles. Identify the metal X. How will you convert this sulphide ore into the metal? Explain with equations.

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Metals And Non Metals Visual Case Based Questions

1. During an experiment, Rohan took the samples of four metals A, B, C and D and added following solution one by one. The results obtained have been tabulated as below:

Metal	Iron (II) Sulphate	Copper (III) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	—	—
B	Displacement	—	No reaction	—
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

Which is the most reactive metal?

A. A

B. B

C. C

D. D

Answer: B

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2. During an experiment, Rohan took the samples of four metals A, B, C and D and added following solution one by one. The results obtained have been tabulated as below:

Metal	Iron (II) Sulphate	Copper (III) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	—	—
B	Displacement	—	No reaction	—
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

Which of the following statement would be correct if B is added to a solution of Copper (II) Sulphate?

A. There will be no reaction.

B. B will displace Cu from $CuSO_4$ solution.

C. B will not be able to displace Cu.

D. There will be formation of Iron (II) sulphate.

Answer: B

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3. During an experiment, Rohan took the samples of four metals A, B, C and D and added following solution one by one. The results obtained have been tabulated as below:

Metal	Iron (II) Sulphate	Copper (III) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	—	—
B	Displacement	—	No reaction	—
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

Arrange the metals A, B, C and D in the order of decreasing reactivity?

A. $B > A > C > D$

B. $D > B > A > C$

C. $C > D > B > A$

D. $A > C > D > B$

Answer: A

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4. During an experiment, Rohan took the samples of four metals A, B, C and D and added following solution one by one. The results obtained

have been tabulated as below:

Metal	Iron (II) Sulphate	Copper (III) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	—	—
B	Displacement	—	No reaction	—
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

Which gas is produced when dilute HCl is added to a reactive metal?

A. CO_2 gas

B. SO_2 gas

C. H_2 gas

D. N_2 gas

Answer: C

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5. During an experiment, Rohan took the samples of four metals A, B, C and D and added following solution one by one. The results obtained have been tabulated as below:

Metal	Iron (II) Sulphate	Copper (III) Sulphate	Zinc Sulphate	Silver Nitrate
A	No reaction	Displacement	—	—
B	Displacement	—	No reaction	—
C	No reaction	No reaction	No reaction	Displacement
D	No reaction	No reaction	No reaction	No reaction

On the basis of sequence of reactions, identify the most and least reactive elements.

$A + BX \rightarrow AX + B$

$C + AY \rightarrow CY + A$

A. Most reactive: C, Least reactive: B

B. Most reactive: B, Least reactive: C

C. Most reactive: A, Least reactive: B

D. Most reactive: B, Least reactive: A

Answer: A

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6. During extraction of metals, electrolytic refining is used to obtain pure metals. During the process, the impure metal is made the anode and a thin strip of pure metal is made the cathode. The solution of the metal salt is used as an electrolyte. On passing the current through the electrolyte, the pure metal from the anode dissolves from the electrolyte. An equivalent of pure metal from the electrolyte is deposited on the cathode.

What is refining of metals?

A. The process of purification of the metal obtained after reduction

B. Electrolysis of metals

C. Heating ore in presence of carbon dioxide

D. Putting a coat of metal in order to avoid corrosion.

Answer: A

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7. During extraction of metals, electrolytic refining is used to obtain pure metals. During the process, the impure metal is made the anode and a thin strip of pure metal is made the cathode. The solution of the metal salt is used as an electrolyte. On passing the current through the electrolyte, the pure metal from the anode dissolves from the electrolyte. An equivalent of pure metal from the electrolyte is deposited on the cathode.

Which of the metals are refined by electrolytic refining?

I. Au

II. Cu

III. Na

IV. K

A. I and II

B. I and III

C. II and III

D. II and IV

Answer: A

Watch Video Solution

8. During extraction of metals, electrolytic refining is used to obtain pure metals. During the process, the impure metal is made the anode and a thin strip of pure metal is made the cathode. The solution of the metal salt is used as an electrolyte. On passing the current through the electrolyte, the pure metal from the anode dissolves from the electrolyte. An equivalent of pure metal from the electrolyte is deposited on the cathode.

During electrolytic refining of zinc, it gets

A. deposited on cathode

B. deposited on anode

C. deposited on cathode as well as anode

D. remains in the solution

Answer: A

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9. During extraction of metals, electrolytic refining is used to obtain pure metals. During the process, the impure metal is made the anode and a thin strip of pure metal is made the cathode. The solution of the metal salt is used as an electrolyte. On passing the current through the electrolyte, the pure metal from the anode dissolves from the electrolyte. An equivalent of pure metal from the electrolyte is deposited on the cathode.

In electrolytic refining of copper, _____ act as impure copper.

A. anode

B. cathode

C. both anode and cathode

D. none of the above

Answer: A

Watch Video Solution

10. During extraction of metals, electrolytic refining is used to obtain pure metals. During the process, the impure metal is made the anode and a thin strip of pure metal is made the cathode. The solution of the metal salt is used as an electrolyte. On passing the current through the electrolyte, the pure metal from the anode dissolves from the electrolyte. An equivalent of pure metal from the electrolyte is deposited on the cathode.

In electrolytic refining of copper, _____ is a strip of pure copper.

A. anode

B. cathode

C. both anode and cathode

D. none of the above

Answer: B

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11. Rajat knows that in a thermite reaction, a compound of iron reacts with a metal. Help him understand more about the reaction.

Name the metal used in this reaction.

A. Copper

B. Aluminium

C. Sodium

D. Magnesium

Answer: B

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12. Rajat knows that in a thermite reaction, a compound of iron reacts with a metal. Help him understand more about the reaction.

After completion of this reaction, a metal is obtained in the molten state. Identify the metal.

A. Copper

B. Sodium

C. Iron

D. Silver

Answer: C

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13. Rajat knows that in a thermite reaction, a compound of iron reacts with a metal. Help him understand more about the reaction.

Represent this reaction in the form of a balanced chemical equation.

A. $Cu_2S + 2Cu_2O \rightarrow 6Cu + SO_2$

B. $ZnCO_3 \rightarrow ZnO + CO_2$

C. $3MnO_2 + 4Al \rightarrow 3Mn + 2Al_2O_3 +$ Heat

D. $Fe_2O_3 + 2Al \rightarrow 2Fe + Al_2O_3$ + Heat

Answer: D

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14. Rajat knows that in a thermite reaction, a compound of iron reacts with a metal. Help him understand more about the reaction.

Mention the most common use of this reaction.

A. To make coins

B. To make an alloy

C. For galvanizing

D. To join railway tracks or cracked machine parts

Answer: D

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15. Rajat knows that in a thermite reaction, a compound of iron reacts with a metal. Help him understand more about the reaction.

Thermite reaction _____

A. is endothermic

B. is highly exothermic

C. produces H_2 gas

D. needs cooling

Answer: B

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Carbon And Its Compounds Self Assessment Objective Type Questions A Multiple Choice Questions

1. Which of these show addition reaction?

A. C_2H_4

B. C_2H_6

C. C_2H_5OH

D. $CH_3CH_2CH_3$

Answer:

Watch Video Solution

2. In the given reaction, H_2SO_4 act as _____

$$\underset{\text{Ethanol}}{2CH_3CH_2OH} \xrightarrow[H_2SO_4]{\text{Hot Conc.}} \underset{\text{Ethene}}{2CH} = CH_2 + H_2O$$

A. Reducing agent

B. Oxidising agent

C. Dehydrating agent

D. Catalyst

Answer:

Watch Video Solution

3. Which of these show saponification reaction?

A. $CH_3COOC_2H_5 \xrightarrow{NaOH} C_2H_5OH + CH_3COOH$

B. $\underset{\text{Ethanol}}{2CH_3CH_2OH} \xrightarrow[H_2SO_4]{\text{Hot Conc.}} \underset{\text{Ethene}}{2CH = CH_2} + H_2O$

C.

$$CH_3 - COOH + CH_3 - CH_2OH \xrightarrow{\text{Acid}} CH_3 - \underset{\underset{O}{||}}{C} - O - CH_2 - CH$$

D. $2Na + 2CH_3CH_2OH \rightarrow 2CH_3CH_2ONa + H_2$

Answer:

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Carbon And Its Compounds Self Assessment Objective Type Questions B Assertion And Reason Type Questions

1. Assertion (A): In esterification, carboxylic acid and alcohol reacts in the presence of acid to give ester.

Reason (R) : Esterification is the reverse of saponification.

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

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

C. Assertion (A) is true but reason (R) is false.

D. Assertion (A) is false but reason (R) is true.

Answer:

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2. Assertion (A): Soap has good cleansing action.

Reason (R) : Soap has short chain of hydrocarbon which acts as hydrophobic and long ionic part which acts as hydrophilic.

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

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

C. Assertion (A) is true but reason (R) is false.

D. Assertion (A) is false but reason (R) is true.

Answer:

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Carbon And Its Compounds Self Assessment C Very Short Answer Type Questions

1. Name the process of converting vegetable oil to vegetable ghee.

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2. Complete the following reaction :

$CH_3COOH \rightarrow NaHCO_3 \rightarrow$

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3. What is the difference between the molecules of soaps and detergents, chemically?

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Carbon And Its Compounds Self Assessment Short Answer Type Questions

1. Explain the cleansing action of soaps.

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Carbon And Its Compounds Self Assessment Long Answer Type Questions

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

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Carbon And Its Compounds Visual Case Based Questions

1. A homologous series is a series of organic compounds which belong to the same family i.e., possess same functional group) and show similar chemical properties. The members of this series are called homologous and differ from each other by the number of CH_2, units in the main

carbon chain.

The chemical properties of which of the following compounds is similar to the butane?

A. Butyne

B. Propene

C. Propyne

D. Pentane

Answer: D

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2. A homologous series is a series of organic compounds which belong to the same family i.e., possess same functional group) and show similar chemical properties. The members of this series are called homologous and differ from each other by the number of CH_2, units in the main carbon chain.

The difference between two consecutive members in a homologous series

in alkanes in terms of molecular mass and number of atoms of elements is :

A. 14 a.m.u and CH_2 respectively

B. 12 a.m.u and CH_3 respectively

C. 14 a.m.u and CH_2 respectively

D. 12 a.m.u and CH_3 respectively

Answer: A

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3. A homologous series is a series of organic compounds which belong to the same family i.e., possess same functional group) and show similar chemical properties. The members of this series are called homologous and differ from each other by the number of CH_2, units in the main carbon chain.

The compound $CH_3CH(OH)CH_3$ belongs to which of the following homologous series?

A. Aldehydes

B. Alcohols

C. Ketones

D. Carboxylic acids

Answer: B

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4. A homologous series is a series of organic compounds which belong to the same family i.e., possess same functional group) and show similar chemical properties. The members of this series are called homologous and differ from each other by the number of CH_2, units in the main carbon chain.

Which of the following is not the property of a homologous series ?

A. They show similar chemical properties.

B. They differ by 14 units by mass.

C. They all contain double bond

D. They can be represented by a general formula

Answer: C

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5. A homologous series is a series of organic compounds which belong to the same family i.e., possess same functional group) and show similar chemical properties. The members of this series are called homologous and differ from each other by the number of CH_2, units in the main carbon chain.

Which of the following represent the name and formula of the 2^{nd} member of homologous series having general formula C_nH_{2n+2} ?

A. Methane, CH_4

B. Ethane, C_2H_6

C. Ethene, C_2H_4

D. Ethyne, C_2H_2

Answer: B

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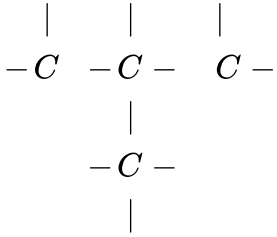
6. We know that carbon has the unique property to form bonds with other atoms of carbon. Now observe the below given chain of carbon atoms and answer the questions.



The characteristic property of carbon as depicted in the chain is :

A. Allotropy

B. Catenation

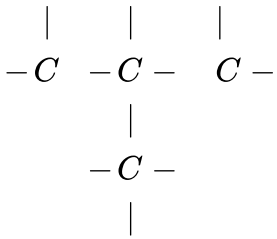
C. Isomerisation

D. Halogenation

Answer: B

Watch Video Solution

7. We know that carbon has the unique property to form bonds with other atoms of carbon. Now observe the below given chain of carbon atoms and answer the questions.



Give reasons for this unique property of carbon.

A. Catenation property and tetravalency

B. Isomerism and covalency

C. Allotropy and bivalency

D. Homologous series and covalency

Answer: A

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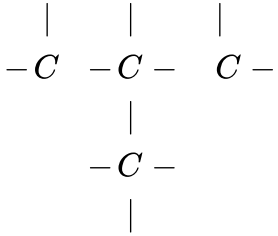
8. We know that carbon has the unique property to form bonds with other atoms of carbon. Now observe the below given chain of carbon atoms and answer the questions.



The name of a saturated compound in which the carbon atoms are arranged in a ring is :

A. Carbon tetrachloride

B. Cyclohexane

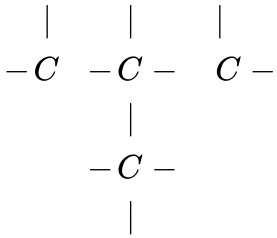
C. Pentane

D. Methane

Answer: B

Watch Video Solution

9. We know that carbon has the unique property to form bonds with other atoms of carbon. Now observe the below given chain of carbon atoms and answer the questions.



The number of single bonds present in this compound (cyclohexane) is :

A. 12

B. 14

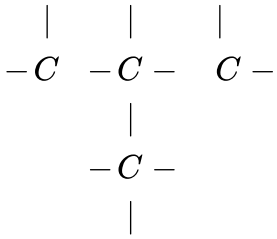
C. 16

D. 18

Answer: D

Watch Video Solution

10. We know that carbon has the unique property to form bonds with other atoms of carbon. Now observe the below given chain of carbon atoms and answer the questions.



Which of the following statements are correct for carbon compounds?

(1) Most carbon compounds are good conductors of electricity.

(2) Most carbon compounds are poor conductors of electricity.

(3) Force of attraction between molecules of carbon compounds are not very strong.

(4) Force of attraction between molecules of carbon compounds are very strong.

A. (2) and (4)

B. (2) and (3)

C. (1) and (4)

D. (1) and (3)

Answer: B

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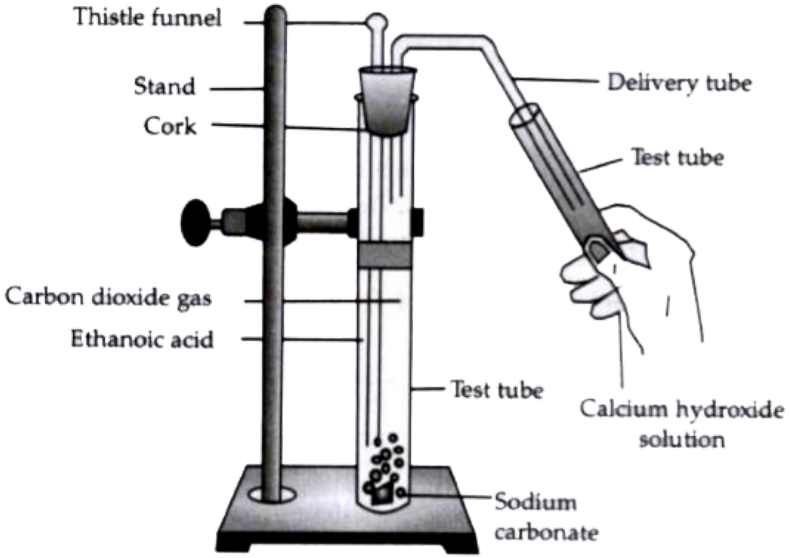

11.

Name the gas released in test tube B.

A. Oxygen

B. Carbon dioxide

C. Hydrogen

D. Nitrogen

Answer: B

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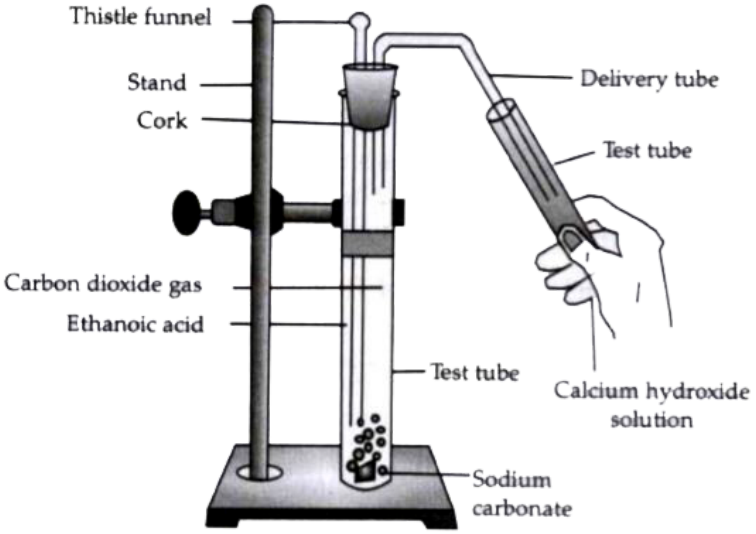

12.

If ethanol is used instead of ethanoic acid, which of the following would be the correct statement?

A. Ethene is formed.

B. Ethanol will react with sodium carbonate.

C. Ethanol will not react with sodium carbonate.

D. None of the above

Answer: C

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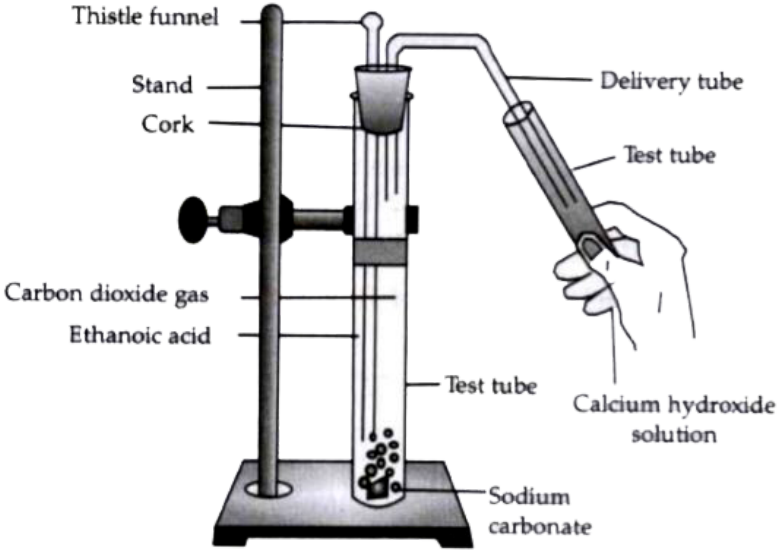

13.

What happens when quicklime is dissolved in water?

A. It produces calcium hydroxide $Ca(OH)_2$

B. It produces sodium chloride, NaCl.

C. It produces hydrogen, H_2

D. It produces copper sulphate, $CuSO_4$

Answer: A

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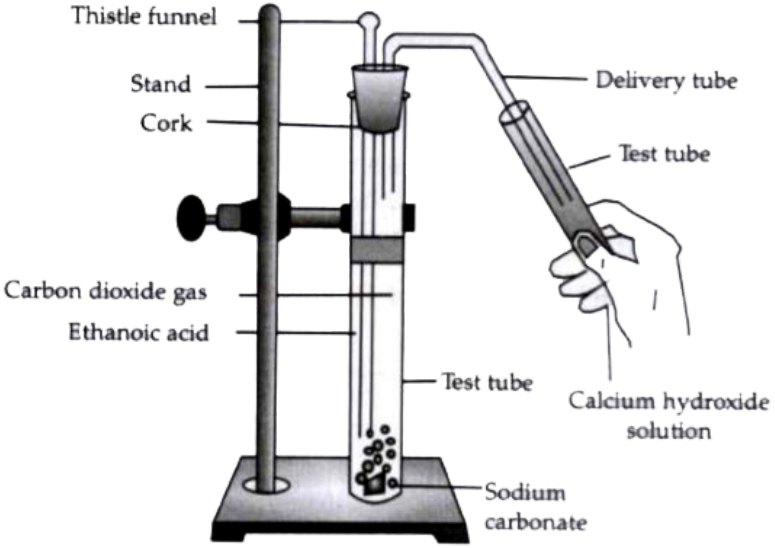

14.

Write the reaction involved in test tube A?

A. $CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COOH + H_2O$

B. $2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O$

C. $CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + CO_2$

D. $2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O + CO_2$

Answer: D

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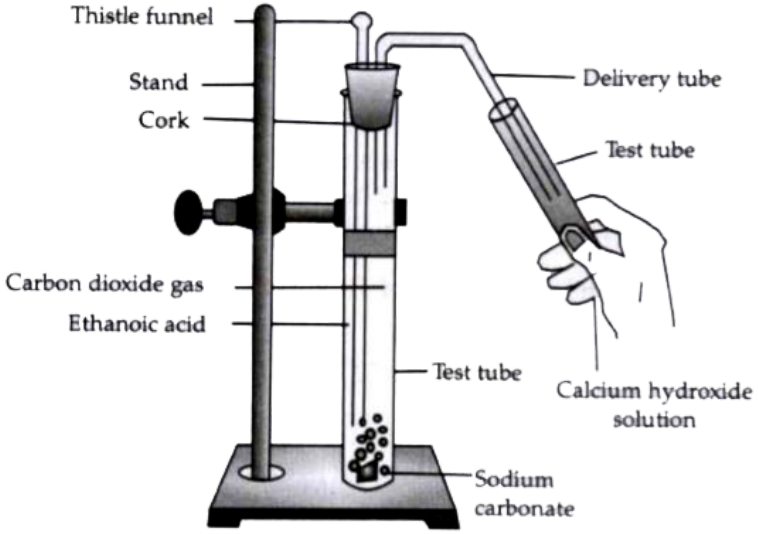

15.

What is the test to identify that the evolved gas is carbon dioxide.

A. It gives pop up sound.

B. It turns lime water milky.

C. It has smell of rotten eggs.

D. It helps burning

Answer: B

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Periodic Classification Of Elements Visual Case Based Questions

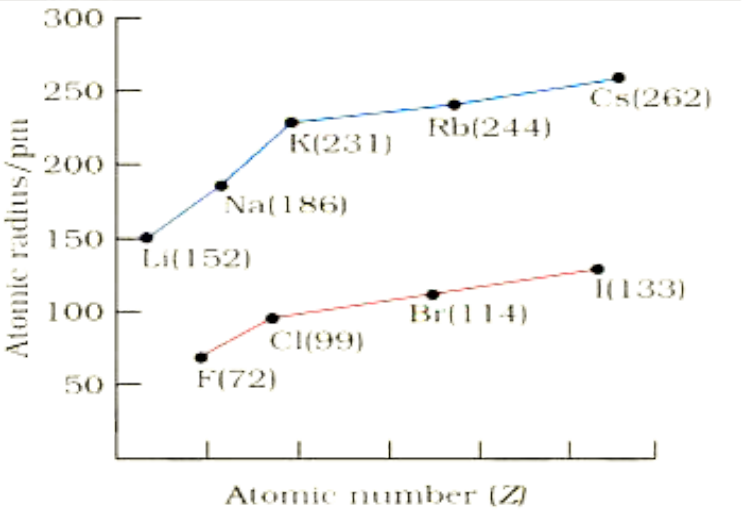
1. Metallic Character

The ability of an atom to donate electrons and form positive ion (cation) is known as electropositivity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electropositivity decreases due to decrease in atomic size.

Non-Metallic Character

The ability of an atom to accept electrons to form a negative ion (anion) is called non-metallic character or electronegativity. The elements having high electro-negativity have a higher tendency to gain electrons and form anion. Down the group, electronegativity decreases due to increase in atomic size and across the period, from left to right electronegativity

increases due to decrease in atomic size



Which of the following correctly represents the decreasing order of metallic character of Alkali metals plotted in the graph?

A. $Cs > Rb > Li > Na > K$

B. $K > Rb > Li > Na > Cs$

C. $Cs > Rb > K > Na > Li$

D. $Cs > K > Rb > Na > Li$

Answer: C

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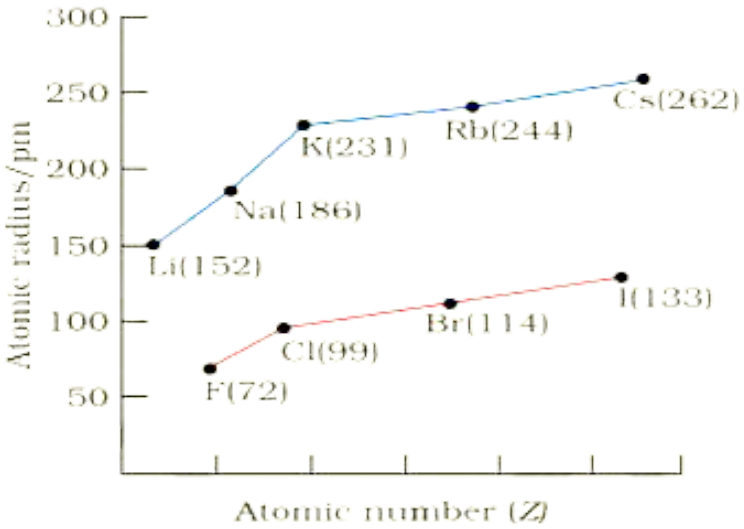
2. Metallic Character

The ability of an atom to donate electrons and form positive ion (cation) is known as electropositivity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electropositivity decreases due to decrease in atomic size.

Non-Metallic Character

The ability of an atom to accept electrons to form a negative ion (anion) is called non-metallic character or electronegativity. The elements having high electro-negativity have a higher tendency to gain electrons and form anion.Down the group, electronegativity decreases due to increase in atomic size and across the period, from left to right electronegativity increases due to decrease in atomic size



Hydrogen is placed along with Alkali metals in the modern periodic table though it shows non-metallic character

A. as hydrogen has one electron & readily loses electron to form negative ion.

B. as hydrogen can easily lose one electron like alkali metals to form positive ion.

C. as hydrogen can gain one electron easily like Halogens to form negative ion.

D. as hydrogen shows the properties of non metals.

Answer: B

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3. Metallic Character

The ability of an atom to donate electrons and form positive ion (cation) is known as electropositivity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electropositivity decreases due to decrease in atomic size.

Non-Metallic Character

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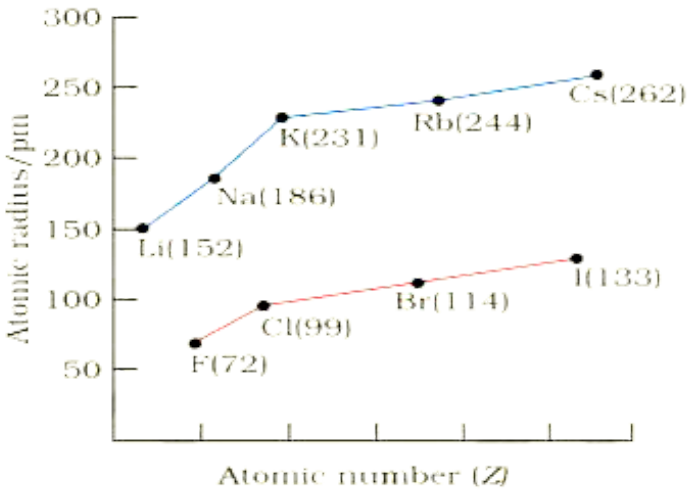

Which of the following has highest electronegativity?

A. F

B. Cl

C. Br

D. I

Answer: A

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4. Metallic Character

The ability of an atom to donate electrons and form positive ion (cation) is known as electropositivity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electropositivity decreases due to decrease in atomic size.

Non-Metallic Character

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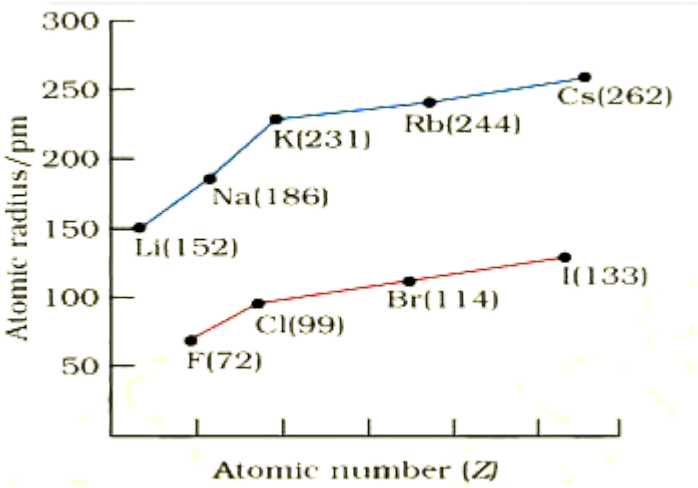

Identify the reason for the gradual change in electronegativity in halogensdown the group.

A. Electronegativity increases down the group due to decrease in atomic size.

B. Electronegativity decreases down the group due to decrease in tendency to lose electrons.

C. Electronegativity decreases down the group due to increase in atomic radius/ tendency to gain electron decreases.

D. Electronegativity increases down the group due to increase in forces of attractions between nucleus & valence electrons.

Answer: C

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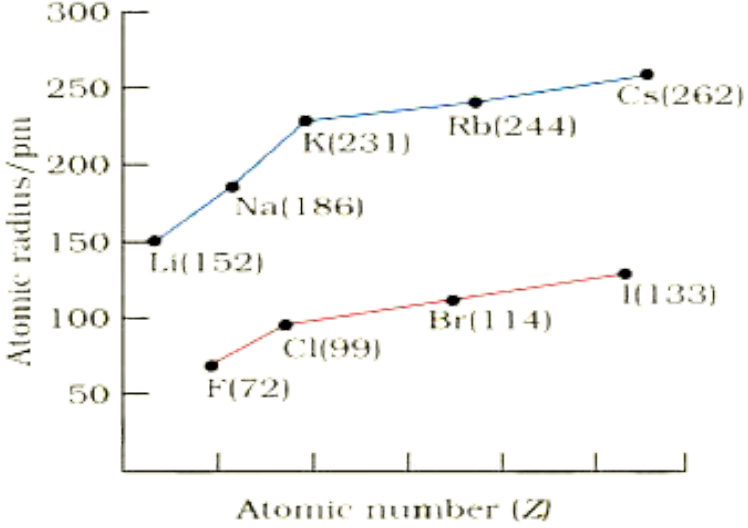
5. Metallic Character

The ability of an atom to donate electrons and form positive ion (cation) is known as electropositivity or metallic character. Down the group, metallic character increases due to increase in atomic size and across the period, from left to right electropositivity decreases due to decrease in atomic size.

Non-Metallic Character

The ability of an atom to accept electrons to form a negative ion (anion) is called non-metallic character or electronegativity. The elements having high electro-negativity have a higher tendency to gain electrons and form anion. Down the group, electronegativity decreases due to increase in atomic size and across the period, from left to right electronegativity increases due to decrease in atomic size



Which of the following reason correctly justifies that "Fluorine (72pm) has smaller atomic radius than Lithium (152pm)"?

A. F and Li are in the same group. Atomic size increases down the group.

B. F and Li are in the same period. Atomic size increases across the period due to increase in number of shells.

C. F and Li are in the same group. Atomic size decreases down the group.

D. F and Li are in the same period and across the period atomic size/radius decreases from left to right

Answer: D

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6.

Group → Period ↓	1	2	13	14	15	16	17	18
3	X		B	C	D	E		
4	Y							
5	Z							

Which of these elements have smallest atomic size?

A. B

B. C

C. D

D. E

Answer: D

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Group → Period ↓	1	2	13	14	15	16	17	18
3	X		B	C	D	E		
4	Y							
5	Z							

7.

Write electronic configuration of element E.

A. 2,8,3

B. 2,8,6

C. 2,8,5

D. 2,8

Answer: B

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Group → Period ↓	1	2	13	14	15	16	17	18
3	X		B	C	D	E		
4	Y							
5	Z							

8.

Identify the elements which have similar physical and chemical properties as the element Y.

A. B and C

B. D and E

C. X and Z

D. C and E

Answer: C

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Group → Period ↓	1	2	13	14	15	16	17	18
3	X		B	C	D	E		
4	Y							
5	Z							

9.

The number of period that the modern periodic table has :

A. Seven

B. Eight

C. Seventeen

D. Eighteen

Answer: A

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Group → Period ↓	1	2	13	14	15	16	17	18
3	X		B	C	D	E		
4	Y							
5	Z							

10.

An element 'X' belongs to the third period and group 16 of the periodic table. Find out the valency of X?

A. Valency = 0

B. Valency = 2

C. Valency = 1

D. Valency = 3

Answer: B

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

found that elements A and G combine to form an ionic compound which can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of element D is almost neutral.

To which group or period of the periodic table do the elements A and B belong?

A. 1 and 2

B. 13 and 14

C. 15 and 16

D. 17 and 18

Answer: A

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12. Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different in their outermost shells. It was found that elements A and G combine to form an ionic compound which

can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of elements D is almost neutral.

Which one of the following elements is likely to be a noble gas?

A. A

B. B

C. H

D. D

Answer: C

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13. Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different in their outermost shells. It was found that elements A and G combine to form an ionic compound which can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of element D is

almost neutral.

Which one of the eight elements would have the largest atomic radius?

A. B has largest atomic radius.

B. D has largest atomic radius.

C. A has largest atomic radius.

D. G has largest atomic radius

Answer: C

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14. Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different number of electrons in their outermost shells. It was found that elements A and G combine to form an ionic compound which can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of elements D is almost neutral.

Which two elements amongst these are likely to be the non-metals ?

A. A and C are likely to be non-metals.

B. G and H are likely to be non-metals.

C. C and D are likely to be non-metals.

D. E and F are likely to be non-metals.

Answer: D

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15. Atoms of eight elements A, B, C, D, E, F, G and H have the same number of electronic shells but are different in their outermost shells. It was found that elements A and G combine to form an ionic compound which can also be extracted from sea water. Oxides of the elements A and B are basic in nature while those of E and F are acidic. The oxide of element D is almost neutral.

Which of the following compound is obtained from sea water?

A. Zinc sulphate

B. Sodium chloride

C. Copper sulphate

D. Iron sulphide

Answer: B

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