CHEMISTRY

BOOKS - OSWAL PUBLICATION

METALS AND NON-METALS

Self Assessment 1 Multiple Choice Questions

1. Which of these metal and non-metal exists in liquid stsate at room temperature?

A. Mercury and bromine respectively.

B. Bromine and mercury respectively.

C. Sodium and potassium respectively

D. Mercury and potassium respectively.

Answer:

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2. An element X forms an oxide which turns red litmus blue. The element is a

A. Metal

B. Non-metal

C. Metalloids

D. None of these

Answer:

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Self Assessment 1 Passage Diagram Based Questions

1. B. Passage/Diagram Based Questions

Study the given passage and answer the following questions:

When a silvery grey powder of a solild (A) is mixed

with a powerd of solid (B) no reaction occurs. But if the mixture is ignited and lighted using magnesium ribbon a reaction occurs with evolution of large amount of heat forming product (C) which settles down as liquid metal and the soild product (D) formed floats on the liquid (C). (C) in soild form reacts with moisture to form rust. The amount of heat generated during the reaction is so high that the reaction is used in welding of electric conductors, joints in railway tracks. Based on this information, answer the following questions.

Identify (A), (B) (C) and (D).

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2. B. Passage/Diagram Based Questions

Study the given passage and answer the following questions:

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conductors, joints in railway tracks. Based on this information, answer the following questions.

Write the balanced chemical equation for the reaction. Name the type of reaction.

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3. B. Passage/Diagram Based Questions

Study the given passage and answer the following questions:

When a silvery grey powder of a solild (A) is mixed with a powerd of solid (B) no reaction occurs. But if the mixture is ignited and lighted using

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If (A) reacts with air on heating what will be the nature of oxide formed?

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4. B. Passage/Diagram Based Questions

Study the given passage and answer the following questions:

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information, answer the following questions.

Does oxide of (A) react with aqueous NaOH and/or HCI? Give balance chemical equations.

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Self Assessment 1 Assertion And Reason Type Questions

1. Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

Assertion : Aluminium is more reactive than iron.

Reason : Its corrosion is less than that of iron.

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

B. (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 : Ionic compounds have high melting and boiling points.

Reason : In ionic compounds, there are strong forces of attraction between oppositely charged ions.

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

B. (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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Self Assessment 1 Very Short Answer Types Questions

1. Make a distinction between metals and non-metals with respect to the nature of their oxide.

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2. Show the formation of MgO by the transfer of electrons.

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3. Write one example each of the following metals :

(a) Most malleable and most ductile.

(b) Best conductor of heat and the poorest conductor of heat

(c) A metal with highest melting point and a metal with lowest melting point.

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Ncert Corner Intext Questions

1. Name a metal which is liquid at room temperature.

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2. State two metals which can be cut easily with a knife.

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3. Give an example of a metal which

is the best conductor of heat

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4. A metal which is a poor conducton of heat

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5. Explain the meanings of malleable and ductile.

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6. Why is sodium kept immersed in kerosene oil?

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7. Write equation for the reaction of iron with steam.

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8. Write equations for the reactions of

Calcium and potassium with water

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9. Samples of four metals A, B, C and D were taken and added to the following solution one by one. The results obtained have been tabulated as follows.

Which is the most reactive metal?

Metal	Iron(II) sulphate	Copper(II) 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

Use the table above to answer the following questions about metals A, B C and D.

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10. Samples of four metals A, B, C and D were taken and added to the following solution one by one.

The results obtained have been tabulated as follows.

What would you observe if B is added to a solution of Copper (II) sulphate?

Metal	Iron(II) sulphate	Copper(II) sulphate	Zinc sulphate	Silver nitrate
A	No reac-tion	Displace-ment		
B	Displace-ment		No reac-tion	
C	No reac-tion	No reaction	No reac-tion	Dis-place-ment
D	No reac-tion	No reaction	No reac-tion	No reac-tion

Used the table above to answer the following questions about A, B C and D.

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11. Samples of four metals A, B, C and D were taken and added to the following solution one by one. The results obtained have been tabulated as follows.

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

Metal	Iron(II) sulphate	Copper(II) sulphate	Zinc sulphate	Silver nitrate
A	No reac-tion	Displace-ment		
B	Displace-ment		No reac-tion	
C	No reac-tion	No reaction	No reac-tion	Dis-place-ment
D	No reac-tion	No reaction	No reac-tion	No reac-tion

Use the table above to answer the following questions about metals A, B, C and D.

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12. Which gas is produced when dilute hydrochloric acid is added to a reactive metal? Write the chemical reaction when iron reacts with dilute H_2SO_4.

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13. What would you observe when zinc is added to a solution of iron (II) sulphate?

Write the chemical reaction that takes place.

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14. Write the electron dot structures of sodium, oxygen and magnesium.

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15. Show the formation of Na_2O and MgO by the transfer of electrons.

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16. What are the ions present in these compounds? Na_2O and MgO.

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17. Why do ionic compounds have high melting points?

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18. Define the following terms.

(i) Mineral

(ii) Ore

(iii) Gangue

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19. Define the following terms.

Ore

Watch Video Solution

20. Define the following terms.

(i) Mineral

(ii) Ore

(iii) Gangue

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21. Name two metals which are found in nature in the free state.

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22. What chemical process is used for obtaining a metal from its oxide?

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23. Metallic oxides of zinc, magnesium and copper were heated with the following metals:

Metal	Zinc	Magnesium	Copper
Zinc oxide			
Magnesium oxide			
Copper oxide			

In which case will cases will you find displacement reactions taking place?

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24. Which metals do not corrode easily?

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25. What are alloys?

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Ncert Corner Exercise Questions

1. Which of the following pairs will give displacement reactions?

A. NaCI solution and copper metal

B. $MgCI_2$ solution and aluminium metal

C. $FeSO_4$ solution and silver metal

D. $AgNO_3$ solution and copper metal

Answer: D

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2. Which of the following methods is suitable for preventing an iron frying pan from rusting ?

A. Applying grease

B. Applying paint

C. Applying a coating of zinc

D. All of the above.

Answer: C

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3. An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be -

A. calcium

B. carbon

C. silicon

D. iron

Answer: A

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4. Food cans are coated with tin but not with zinc because

A. zinc is costlier than tin

B. zinc has a higher melting point than tin

C. zinc is more reactive than tin

D. zinc is less reactive than tin

Answer: C

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5. You are given a hammer, a battery, a bulb, wires and a switch.

(a) How could you use them to distinguish between samples of metals and non-metals?

(b) Assess the usefulness of these tests in distinguishing between metals and non – metals.

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(a) How could you use them to distinguish between samples of metals and non-metals?

(b) Assess the usefulness of these tests in distinguishing between metals and non – metals.

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7. What are amphoteric oxides? Give two examples of amphoteric oxides.

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8. Name two metals which will displace hydrogen from dilute acids, and two metals which will not.

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

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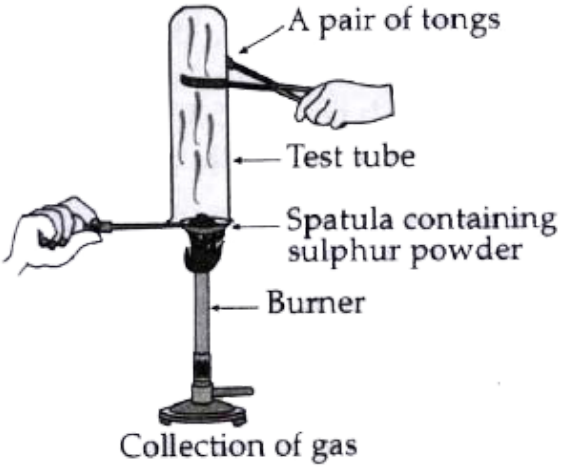
10. Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it, as shown in figure below.

What will be the action of gas on

dry litmus paper?



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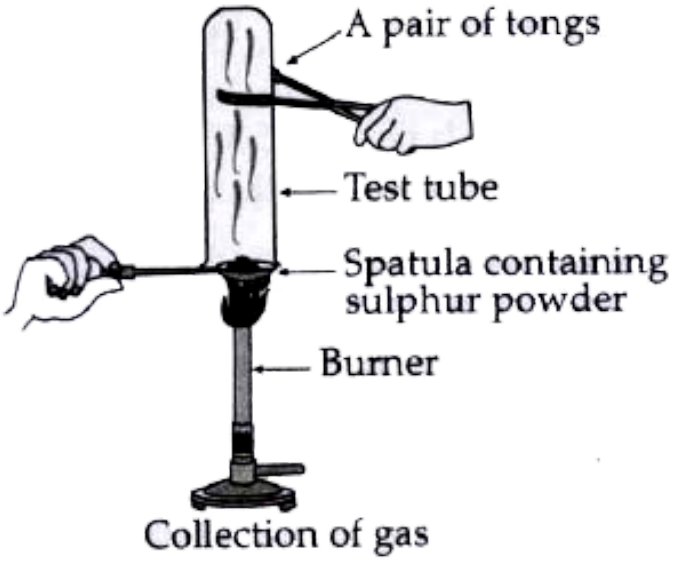
11. Pratyush took sulphur powder on a spatula and heated it. He collected the gas evolved by inverting a test tube over it, as shown in figure below.

What will be the action of gas on

moist litmus paper ?



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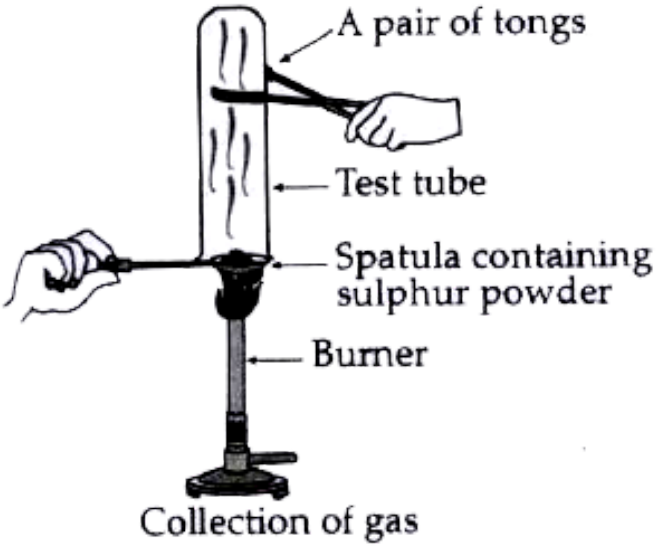
Write a balanced chemical equation for the

reaction taking place.



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13. State two ways to prevent the rusting of iron.

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14. What type of oxides is formed when non-metals combine with oxygen?

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15. Gold, platinum and silver are used to make jewellery. Give reasons.

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16. Give reason:

Sodium, potassium and lithium are stored under oil

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17. Give reason:

Aluminium is a highly reactive metal, yet it is used to make utensils for cooking

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18. 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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19. You must have seen tarnished copper vessels being cleaned with lemon or tamarind juice. Explain why these sour substances are effective in cleaning the vessels.

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20. Differentiate between metal and non-metal on the basis of their chemical properties.

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21. A man went door to door posing as a goldsmith. He promised to bring back the glitter of old and dull gold ornaments. An unsuspecting lady gave a set of gold bangles to him which he dipped in a particular solution. The bangles sparkled like new but their weight was reduced drastically. The lady was upset but after a futile argument the man beat a hasty retreat. Can you play the detective to find out the nature of the solution he had used?

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

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Ncert Exemplar Multiple Choice Questions

1. Which of the following property is generally not shown by metals?

A. Electrical conduction

B. Sonorous in nature

C. Dullness

D. Ductility

Answer: C

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

A. ductility

B. malleability

C. sonorousity

D. conductivity

Answer: A

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3. Aluminium is used for making cooking utensils. Which of the following properties of aluminium are responsible for the same ?

(i) Good thermal conductivity

(ii) Good electrical conductivity

(iii) Ductility

(iv) High melting point

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. (i) and (iv)

Answer: D

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4. Which one of the following metals do not react with cold as well as hot water ?

A. Na

B. Ca

C. Mg

D. Fe

Answer: D

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5. Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?

A. FeO

B. Fe_2O_3

C. Fe_3O_4

D. $Fe_2O_3 \text{and} Fe_3O_4$

Answer: C

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6. What happens when calcium is treated with water?

(i) It does not react with water.

(ii) It reacts violently with water.

(iii) It reacts less violently with water.

(iv) Bubbles of hydrogen gas formed stick to the surface of calcium.

A. (i) and (iv)

B. (ii) and (iii)

C. (i) and (ii)

D. (iii) and (iv)

Answer: D

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7. Generally metals react with acids to give salt and hydrogen gas. Which of the following acids does not give hydrogen gas on reacting with metals (except Mn and Mg)?

A. H_2SO_4

B. HCI

C. HNO_3

D. All of the above.

Answer: C

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8. The composition of aqua-regia is

A. $Dil.\ HCI : Conc.\ HNO_3$
$3 : 1$

B. $Conc.\ HCI : Dil.\ HNO_3$
$3 : 1$

C. $Conc.\ HCI : Conc.\ HNO_3$
$3 : 1$

D. $Dil.\ HCI : Dil.\ HNO_3$
$3 : 1$

Answer:

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9. Which of the following are not ionic compound/

(i) KCI

(ii) HCI

(iii) $\mathbb{C}I_4$

(iv) NaCI

A. (i) and (ii)

B. (ii) and (iii)

C. (iii) and (iv)

D. (i) and (iii)

Answer: B

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10. Which one of the following properties is not generally exhibited by ionic compounds?

A. Solubility in water

B. Electrical conductivity in solid state

C. High melting and boiling points

D. Electrical conductivity in molten state

Answer: B

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11. Which of the following metals exist in their native state in nature ?

(i) Cu (ii) Au

(iii) Zn (iv) Ag

A. (i) and (ii)

B. (ii) and (iii)

C. (ii) and (iv)

D. (iii) and (iv)

Answer: C

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12. Metals are refined by using different methods. Which of the following metals are refined by electrolytic refining?

A. (i) and (ii)

B. (i) and (iii)

C. (ii) and (iii)

D. (iii) and (iv)

Answer: A

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13. Silver articles become black on prolonged exposure to air. This is due to the formation of

A. Ag_3N

B. Ag_2O

C. Ag_2S

D. $Ag_2S \text{and} Ag_3N$

Answer: C

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14. Galvanisation is a method of protecting iron from rusting by coating it with a thin layer of

A. Gallium

B. Aluminium

C. Zinc

D. Silver

Answer: C

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15. Stainless steel is very useful material for our life.

In stainless steel,iron is mixed with

A. Ni and Cr

B. Cu and Cr

C. Ni and Cu

D. Cu and Au

Answer: A

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16. If copper is kept open in air, it slowly loses its shining brown surface and gains a green coating. It is due to the formation of

A. $CuSO_4$

B. $CuCO_3$

C. $Cu(NO_3)_2$

D. CuO

Answer: B

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17. Generally, metals are solid in nature. Which one of the following metals is found in liquid state at room temperature?

A. Na

B. Fe

C. Cr

D. Hg

Answer: D

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18. Which of the following metals are obtained by electrolysis of their chlorides in molten state?

A. (i) and (iv)

B. (iii) and (iv)

C. (i) and (iii)

D. (i) and (ii)

Answer: D

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19. Generally, non-metals are not lustrous. Which of the following non-metals is lustrous?

A. Sulphur

B. Oxygen

C. Nitrogen

D. Iodine

Answer: D

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20. Which one of the following four metals would be displaced from the solution of its salts by other three metals?

A. Mg

B. Ag

C. Zn

D. Cu

Answer: B

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21. 2 mL each of conc. HCl, HNO_3 and a mixture of conc. HCl and conc. HNO_3 in the ratio of3 : 1 were taken in test tubes labelled as A, B and C. A small piece of metal was put in each test tube. No change occurred in test tubes A and B but the metal got dissolved in test tube C. The metal could be

A. Al

B. Au

C. Cu

D. Pt

Answer: B

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22. An alloy is

A. an element

B. a compound

C. a homogeneous mixture

D. a heterogeneous mixture

Answer: C

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23. An electrolytic cell consists of

(i) positively charged cathode

(ii) negatively charged anode

(iii) positively charged anode

(iv) negatively charged cathode

A. (i) and (ii)

B. (iii) and (iv)

C. (i) and (iii)

D. (ii) and (iv)

Answer: B

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24. 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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25. An element A is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following.

A. Mg

B. Na

C. P

D. Ca

Answer: B

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26. Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents?

A. Brass

B. Bronze

C. Amalgam

D. Steel

Answer: D

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27. Which among the following statements is incorrect for magnesium metal?

A. It burns in oxygen with a dazzling white flame

B. It reacts with cold water to form magnesium oxide and evolves hydrogen gas

C. It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas

D. It reacts with steam to form magnesium hydroxide and evolves hydrogen gas

Answer: B

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28. Which among the following alloys contain mercury as one of its constituents?

A. Stainless steel

B. Alnico

C. Solder

D. Zinc amalgam

Answer: D

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29. Reaction' between X and Y, forms compound Z. X loses electron and Y gains electron. Which of the following properties is not shown by Z?

A. Has high melting point

B. Has low melting point

C. Conducts electricity in molten state

D. Occurs as solid

Answer: B

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30. The electronic configurations of three elements X, Y and Z are X 2, 8, Y-2, 8, 7 and Z- 2, 8, 2. Which of the following is correct?

A. X is a metal

B. Y is a metal

C. Z is a non-metal

D. Y is a non-metal and Z is a metal

Answer: D

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31. Although metals form basic oxides, which of the following metals form an amphoteric oxide ?

A. Na

B. Ca

C. Al

D. Cu

Answer: C

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32. Generally, non-metals are not conductors of electricity. Which of the following is a good conductor of electricity?

A. Diamond

B. Graphite

C. Sulphur

D. Fullerence

Answer: B

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33. Electrical wires have a coating of an insulating material. The material, generally used is

A. Sulphur

B. Graphite

C. PVC

D. All can be used

Answer: C

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34. Which of the following non-metals is a liquid?

A. Carbon

B. Bromine

C. Phosphorus

D. Sulphur

Answer: B

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35. Which of the following can undergo a chemical reaction?

A. $MgSO_4 + Fe$

B. $ZnSO_4 + Fe$

C. $MgSO_4 + Pb$

D. $CuSO_4 + Fe$

Answer: D

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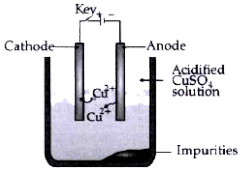
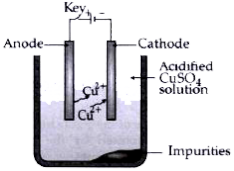
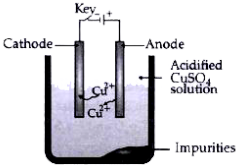
36. Which one of the following Figures correctly describes the process of electrolytic refining?

A. 

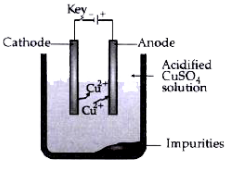
B.



C.



D.



Answer: C

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Ncert Exemplar Short Answer Questions

1. Iqbal treated a lustrous, divalent element M with sodium hydroxide. He observed the formation ,of bubbles in reaction mixture. He made the same observations when this element was treated with hydrochloric acid. Suggest how can he identify the produced gas. Write chemical equations for both the reactions.

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2. During extraction of metals, electrolytic refining is used to obtain pure metals. (a) Which material will be used as anode and cathode .for refining of

silver metal by this process?(b) Suggest a suitable electrolyte also. (c) In this electrolytic cell, where do we get pure silver after passing electric current?

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3. During extraction of metals, electrolytic refining is used to obtain pure metals. (a) Suggest a suitable electrolyte also. (c) In this electrolytic cell, where do we get pure copper after passing electric current ?

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4. During extraction of metals, electrolytic refining is used to obtain pure metals. (a) Suggest a suitable electrolyte also. (c) In this electrolytic cell, where do we get pure copper after passing electric current ?

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5. Why should the metal sulphides and carbonates be converted to metal oxides in the process of extraction of metal from them?

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6. Generally, when metals are treated with mineral acids, hydrogen gas is liberated but when metals (except Mn and Mg), are treated with HNO_3, hydrogen is not liberated, why ?

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7. Compound X and aluminium are used to join railway tracks. (a) Idemjfy the compound X (b) Name the reaction (c) Write down its reaction.

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8. Compound X and aluminium are used to join railway tracks. (a) Idemjfy the compound X (b) Name the reaction (c) Write down its reaction.

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9. Compound X and aluminium are used to join railway tracks. (a) Idemjfy the compound X (b) Name the reaction (c) Write down its reaction.

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10. When a metal X is treated with cold water, it gives a basic salt Y With molecular formula XOH (molecular mass $= 40$) and liberates a gas Z which easily catches fire. Identify X, Y and Z and also write the reaction involved.

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11. A non-metal X exists in two different forms Y and Z. Y is hardest natural substance, whereas Z is a good conductor of electricity. Identify X, Y and Z.

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12. The following reaction takes place when aluminium powder is heated with MnO_2

$3MnO_2(s) + 4Al(s) \rightarrow 3Mn(l) + 2Al_2O_3(l) + \text{Heat}$

(a) Is aluminium gettuing reduced ?

(b) zIs MnO_2 getting oxidised ?

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(b) zIs MnO_2 getting oxidised ?

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14. What are the constituents of solder alloy? Which property of soldev makes it suitable for welding electrical wires?

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15. A metal A, which is used in thermite process, when heated with oxygen gives an oxide B, which is amphoteric in nature. Identify A and B. Write down the reactions of oxide B with HCl and NaOH.

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16. A metal that exists as a liquid at room temperature is obtained by heating its sulphide in the presence of air. Identify the metal and its ore and give the reactions involved.

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17. Give the formulae of the stable binary compounds that wouid be formed by the combination of following pairs of elements.

(a) Mg and N_2 $(b) Li$ and O_2

$(c) Al$ and Cl_2 (d) K and O_2

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19. Give the formulae of the stable binary compounds that wouid be formed by the combination of following pairs of elements.

(a) Mg and N_2 $(b) Li$ and O_2

$(c) Al$ and Cl_2 (d) K and O_2

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20. Give the formulae of the stable binary compounds that would be formed by the combination of following pairs of elements.

(a) Ca and N_2 (b) Li and O_2 (c) Ca and Cl_2 (d) K and O_2

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21. What happens when

(a) $ZnCO_3$ is heated in the absence of oxygen?

(b) a mixture of Cu_2O and Cu_2S is heated?

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22. What happens when

(a) $ZnCO_3$ is heated in the absence of oxygen?

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Ncert Exemplar Long Answer Questions

1. A non-metal A is an important constituent of our food and forms two oxides B and C. Oxide B is toxic whereas C causes global warming.

(a) Identify A, B and C.

(b) To which group of periodic table does A belong?

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2. A non-metal A is an important constituent of our food and forms two oxides B and C. Oxide B is toxic whereas C causes global warming.

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3. Give two examples each of the metals that are good conductors and comparatively poor conductors of heat respectively.

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4. Name one metal and one non-met-al that exist in liquid state at room temperature. Also name two metals having melting point less than 310 K ($37^{\circ}C$).

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5. An element A reacts with water to form a compound B which is used in white washing. The compound B on heating forms an oxide C which on

treatment with water gives back B. Identify A, B and C and give the reactions involved.

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6. An alkali metal A gives a compound B (molecular mass = 40) on reacting with water. The compound B gives a soluble compound C on treatment with aluminium oxide. Identify A, B and C and give the reactions involved.

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7. Give the reaction involved during extraction of zinc from its ore by

(a) roasting of zinc ore. (b) calcination of zinc ore.

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8. Give the reaction involved during extraction of zinc from its ore by

(a) roasting of zinc ore. (b) calcination of zinc ore.

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9. A metal M does not liberate hydrogen from acids but reacts with oxygen Q 5 to give a black colour product. Identify M and black coloured produCt and also explain the reaction of M with oxygen.

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10. An element forms an oxide A_2O_3 which is acidic in nature. Identify A as a metal or non-metal.

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11. A solution of CuSO4 was kept in an iron pot. After few days the iron pot was found to have a number of holes in it. Explain the reason in terms of reactivity. Write the equation of the reaction involved.

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12. A non-metal A which is the largest constituent of air, when heated with H2 in 1 : 3 ratio in the presence of catalyst (Fe) gives a gas B. On heating with O_2 it gives an oxide C. If this oxide is passed into water in the presence of air, it gives an acid D

which acts as a strong oxidising agent.

(a) Identify A, B, C and D.

(b) To which group of the periodic table does this non-metal belongs?

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13. A non-metal A which is the largest constituent of air, when heated with H2 in 1 : 3 ratio in the presence of catalyst (Fe) gives a gas B. On heating with O_2 it gives an oxide C. If this oxide is passed into water in the presence of air, it gives an acid D which acts as a strong oxidising agent.

(a) Identify A, B, C and D.

(b) To which group of the periodic table does this non-metal belongs?

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14. Give the steps involved in the extraction of metals of low and medium reactivity from their respective sulphide ores.

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15. Explain the following

Reactivity of Al decreases if it is dipped in HNO_3

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16. Explain the following

Carbon cannot reduce the oxides of Na or Mg.

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17. Explain the following

NaCl is not a conductor of electricity in soild state

whereas it does conduct electricity in aqueous solution as well as in molten state.

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18. Explain the following

why Iron articles are galvanised.

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19. Why are the metals like Na,K,Ca and Mg never found in their free state in nature?

Watch Video Solution

20. Given below are the steps for extraction of copper from its ore. Write the reaction involved.

(i) Roasting of copper (I) sulphide.

(ii) Reduction of copper (I) oxide with copper (I) sulphide.

(iii) Electrolytic refining

(b) Draw a neat and well labelled diagram for electrolytic refining of copper.

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21. Reduction of copper (1) oxide with copper (1) sulphide.

Watch Video Solution

22. Electrolytic refining.

Watch Video Solution

23. Draw a neat and well labelled diagram for electrolytic refining of copper.

Watch Video Solution

24. Of the three metals X, Y and Z here X reacts with cold water, Y with hot water and Z with steam only. Identify X, Y and Z and also arrange them in order of increasing reactivity.

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25. An element A burns with golden flame in air. It reacts with another element B, atomic number 17 to give a product C. An aqueous solution of product C on electrolysis gives a compound D and

liberates hydrogen. Identify A, B, C and D. Also write down the equations for the reactions involved.

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26. Two ores A and B were taken. On heating, ore A gives CO_2 whereas, ore B gives SO_2. What steps will you take to convert them into metals ?

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Board Corner Very Short Answer Type Questions

1. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal ?

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Board Corner Short Answer Type Questions

1. (a). Write down the electron arrangement in (i) a magnesium atom, and (ii) a chlorine atom.

(b). How many electrons are there in the valence shell of (i) a magnesium atom, and (ii) a chlorine atom?

(c). Show the formation of magnesium chloride from magnesium and chlorine by the transfer of electrons.

(d) State whether magnesium chloride will conduct electricity or not. give reason for your answer.

(e). Why are covalent compounds generally poor conductors of electricity?

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2. Gold, platinum and silver are used to make jewellery. Give reasons.

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3. Give reason:

Sodium, potassium and lithium are stored under oil

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4. Silver articles become black when kept in open for some time, whereas copper vessels lose their shiny brown surfaces and gain a green coat when kept in open. Name the substances present in air with which these metals react and write the name of the products formed.

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5. 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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6. Give reason:

Aluminium is a highly reactive metal, yet it is used to make utensils for cooking

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7. Name a metal of medium reactivity and write three main steps in the extraction of this metal from its sulphide ore.

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Board Corner Short Answer Type Questions Ii

1. What are amphoteric oxides? Give an example. Write balanced chemical equations to justify your answer.

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2. During the reaction of some metals with dilute hydrochloric acid, following observations were made.

(a) Silver metal does not show any change

(b) The temperature of the reaction mixture rises when aluminium (Al) is added

(c)The reaction of sodium metal is found to be highly explosive

(d) Some bubbles of a gas are seen when lead (Pb)is reacted with the acid Explain these observation giving suitable reasons.

Watch Video Solution

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Watch Video Solution

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(iii) Electrolytic refining

(b) Draw a neat and well labelled diagram for electrolytic refining of copper.

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8. (a) Explain the steps for extraction of copper from its ore. Write the reaction involved.

(b) Draw a neat, labelled diagram for electrolytic refining of copper and explain the process.

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9. 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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(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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11. Why are the metals like Na,K,Ca and Mg never found in their free state in nature?

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Board Corner 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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2. State the reason for the following :

Aluminium oxide is called an amphoteric oxide.

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3. State the reason for the following :

An iron strip dipped in a blue copper sulphate solution turns the blue solution pale green.

Watch Video Solution

4. State reasons for the following :

(i) Aluminium oxide is called an amphoteric oxide.

(ii) Hydrogen gas is not evolved when most metals react with nitric acid.

(iii) Nitrogen is used to preserve food.

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5. State the reason for the following :

Calcium does not occur in free state in nature.

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6. State the reason for the following :

Sodium or potassium metals are kept immersed under kerosene.

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7. How will you show experimentally that metals are good conductors of heat?

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8. Describe the extraction of Mercury metal from its ore Cinnabar (HgS).

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9. What is reactivity series? How does the reactivity series of metals help in predicting the relative

activities of various metals?

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10. (a) What is reactivity series ? How does the reactivity series of metals help in predicting the relative activities of various metals ?

(b) Suggest different chemical processes used for obtaining a metal from its oxides for metals in the middle of the reactivity series and metals towards the top of the reactivity series. Support you answer with one example each.

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11. List in tabular form three chemical properties on the basis of which we can differentiate between a metal and a non-metal.

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12. Give reasons for the following:

Most metals conduct electricity well.

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13. Give reasons for the following:

The reaction of iron (III) oxide $[Fe_2O_3]$ with heated aluminium is used to join cracked machine parts.

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14. Write chemical equations for the following reactions:

Calcium metal reacts with water.

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15. Write balanced chemical equations for the following reaction

Cinnabar is heated in the air.

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16. Write chemical equations for the following reactions:

Manganese dioxide is heated with aluminium powder.

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17. What are alloys? List two properties of alloys.

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

Watch Video Solution

19. (a) White the steps involved in the extraction of pure metals in the middle of the activity series from their carbonate ores.

(b) How is copper extracted from its sulphuric ore ? Explain the variour steps supported by chemical equations. Draw labelled diagram from the electrolytic refining of copper.

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20. Draw labelled diagram for the electrolytic refining of copper.

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