

IITJEE Foundation Practice paper

METALS AND NON METALS

class-10th-Science Number of Questions: 99

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1

Non-metal which exist in liquid state is

- mercury sodium bromine chlorine

2

Phosphorus reacts with oxygen and forms

- Phosphorus oxide Phosphorus dioxide Phosphorus pentoxide Acid

3

Metals reacts with oxygen and forms

- acidic oxide basic oxide both acidic and basic oxides none

4

Zinc metal burns in air

- at room temperature on heating on cooling on strong heating

5

Oxides of non-metals turns

- red litmus solution into blue blue litmus solution into red
 no effect on litmus solution none of these

6

Which of the following is a correct reactivity series of metals?

- $K > Na > Mg > Ca$ $K > Ca > Mg > Na$ $K > Ca > Na > Mg$
 $K > Na > Ca > Mg$

7

Which of the following substance is formed, when a metal reacts with water ?

- Metal Oxide Metal Carbonate Metal Hydroxide Metal hydride

8

The gas catches fire with a 'pop' sound and burns with a pale blue flame is

- Oxygen Nitrogen Carbon dioxide Hydrogen

9

Which of the following reaction does not take place?

- $Fe + CuSO_4$ $Al + CuSO_4$ $Zn + CuSO_4$ $Cu + FeSO_4$

10

Which of the following metal does not react with dilute hydrochloric acid?

- Mg Al Fe Cu

11

Which metal occurs in the free state as well as in combined state ?

- Fe Au Cu Al

12

Bauxite is an ore of

- Zinc Iron Calcium Aluminium

13

Calcination is done in the

- Presence of air Absence of air Absence of water Presence of water

14

The sulphide ore of lead is

- Rock salt Magnesite Haematite Galena

15

Roasting is done in the

- Presence of air Absence of air Presence of water Absence of water

16

Magnetite ore is concentrated by ___ method.

- hydraulic washing froth-flotation process magnetic separation
 none of these

17

Element used in making barometer is

- Cu* *Hg* *Sn* *Fe*

18

The ore of iron is

- Bauxite Carnalite Haematite Galena

19

The impurity present in the ore is called

- Gangue Flux Slag Mineral

20

The most abundant metal in the earth's crust is

- Silver Aluminium Zinc Iron

21

The ore of mercury is

- Galena Bauxite Haematite Cinnabar

22

Which of the following is a liquid metal ?

- Gallium Bromine Zinc Sodium

23

The bond found between metals and non-metals is

- Covalent Ionic Metallic Dative

24

Rusting of iron is due to

- Formation of iron oxide Formation of iron chloride Formation of iron sulphide
 Formation of silver sulphide

25

The substance added to remove the impurity is

- Gangue Flux Fuel ore

26

Which of the following is the non-metallic conductor of electricity ?

- Sulphur Diamond Graphite Iodine

27

A mineral is called ore if

- The metal is costly The metal can be extracted from it
 A metal can be profitably extracted from it A metal can not be extracted from it

28

The method used for the concentration of sulphide ores is

- froth flotation smelting magnetic separation gravity separation

29

Brass is an alloy of

- $Cu + Zn$ $Cu + Sn$ $Cu + B$ $Cu + Al$

30

Galvanizing is a method of protecting iron from rusting by coating them with a thin layer of

- Sn Zn Mn Ni

31

Rusting of iron is an example of

- physical change temporary change chemical change periodic change

32

When a small piece of zinc metal is added to a solution of copper sulphate and on heating, the products formed are ____ and ____

- CuO ZnSO₄, Cu ZnO ZnO, SO₂

33

Zinc displaces the following gas from sulphuric acid

- CO₂ O₂ H₂ SO₂

34

The reaction between Br₂ and KI is an example of

- combination reaction decomposition reaction displacement reaction
 double displacement reaction

35

Cinnabar is an ore of

- Mg Hg Pb Sn

36

Rusting can be prevented by

- painting galvanization greasing all of these

37

Which of the following is a noble metal ?

- Copper Zinc Platinum Aluminium

38

Which element is used in the instrument meant for cutting glass and rock ?

- Aluminium Graphite Diamond Gold

39

Which of the following is hard and does not form rust ?

- Iron Copper Aluminium Stainless steel

40

Bronze is an alloy, which is made up of

- $Cu + Sn$ $Cu + Zn$ $C + Cr + Fe$ $Mn + Al$

41

When some metals are exposed to moisture, acids etc. they tarnish due to the formation of metal oxide on their surface. This process is called as

- Reduction Oxidation Corrosion Rancidity

42

Among the following the element that does not react with water or steam to evolve hydrogen is

- Na Mg K S

43

The nature of sulphur dioxide gas is

- basic acidic neutral none of these

44

Sulphur dioxide dissolves in water to form

- H_2SO_4 H_2SO_3 $H_2S_2O_7$ $H_2S_2O_8$

45

Which of the following is hard non-metal ?

- Graphite Diamond Sulphur Iodine

46

Which of the following is soft metal ?

- Graphite Sodium Zinc Magnesium

47

Magnesium oxide dissolves in water partially and forms

- Acidic solution Neutral solution Basic solution none of these

48

Metals can be beaten into thin sheets with hammer , this property is known as

- ductility malleability lustrous sonority

49

The metal, that does not react with air, water vapour or any other gas in the atmosphere is

- Na* *Zn* *Mg* *Au*

50

$2PbO_{(s)} + C_{(s)} \rightarrow 2Pb + CO_2$. In this equation

- PbO* is reduced Carbon is oxidised *PbO* is reduced and Carbon is oxidised
 Pb is reduced

51

Of the following metals, which is the best conductor of electricity

- Nickel Silver Gold Sodium

52

Mercury is used in thermometers because

- It does not wet the glass it expands on heating it is a liquid metal
 all of these

53

Metals react with water to form oxides or hydroxides and liberates which gas ?

- Oxygen Hydrogen Carbondioxide Carbonmonoxide

54

Eating away of metals by water, oxygen and other chemicals is called

- carbonisating amalgamation oxidation corrosion

55

Rusting of iron requires the presence of

- air and water CO_2 and water O_2 and H_2 O_2 and N_2

56

When steam is passed through Zinc, then

- hydrogen gas is liberated zinc hydride is formed zinc hydroxide is formed
 oxygen gas is liberated

57

The metal that forms a self protecting film of oxide to prevent corrosion is

- Cu Al Pt Au

58

An alloy which contains copper and tin is

- Solder Bronze Brass Stainless steel

59

If A,B,C,D,E,F,G,H,I,J and K represents metals in the decreasing order of their reactivity, which one of the most likely to occur in a free state in nature.

- A F K G

60

Hydrogen is not a metal but it has been assigned a place in the reactivity series of metals, because of

- hydrogen is a non-metal existence of H^+ ion contains only one proton
 all are correct

61

The most durable metal plating on iron to protect against corrosion is

- Tin plating Zinc plating Nickel plating copper plating

62

The metal that stored in kerosene oil is

- Potassium Sodium Phosphorus Zinc

63

Metal M occurs in earth's crust as its oxide M_2O_3 . An alloy of this metal is used in making of air crafts. Find M and its oxide.

- Al, Al_2O_3 Fe, Fe_2O_3 Cr, Cr_2O_3 P, P_2O_3

64

In a solution of silver nitrate, a copper plate was dipped. After some time, silver from the solution was deposited on the copper plate. The reaction involved in this process is

- Combination Decomposition Displacement Neutralization

65

In nature, metal A is found in a free state while metal B is found in the form of its compounds. Which of these two will be nearer to the top of the activity series of metals?

- A B A (or) B None

66

Which metal is used as a metal foil for packing of some of the medicine tablets ?

- Zinc Aluminium Silver Copper

67

A solution of $CuSO_4$ was kept in an iron pot. After few days, the iron pot was found to have number of holes in it, because

- iron is less reactive than copper copper is more reactive metal
 iron is more reactive than copper and displaces copper from its solution of $CuSO_4$
 Copper is more reactive than iron and displaces it from its solution of $FeSO_4$

68

Graphite is a non-metal, but conducts electricity because

- it contains carbon atoms it contains free electrons it contains paired electrons
 it is soft

69

Which of the following will replace hydrogen from acids to form salts?

- S P Na Si

70

Name the metal which has been placed

- a) at the top of the activity series
b) at the bottom of the activity series

- K, Na K, Ag K, Au K, Cu

71

A copper coin is kept immersed in a solution of silver nitrate for some time. Then the colour of the solution changes to

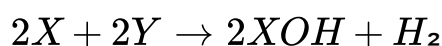
- White Green Blue Yellow

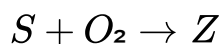
72

The metal M is more reactive than copper and displaces copper from $CuSO_4$ solution. In this reaction the colour changes from blue to green. Find M.

- Al Na Zn Fe

73





then X, Y, Z and P represents

- Na, H_2O, SO_3 and H_2SO_3 K, H_2O, SO_2 and H_2SO_3
 Na, H_2O, SO_2 and H_2SO_4 K, H_2O, SO_3 and H_2SO_4

74

The metal M is a soft metal and it contains 12 neutrons. When it reacts with cool water, it liberates gas ' X '. Identify the metal and the gas.

- K, H_2 P, H_2 Zn, H_2 Na, H_2

75

Tungsten (w) is used in electric bulbs because

- it is sonorous it is metallic it has high tensile strength it has high density

76

The oxides of highly reactive metals are reduced by

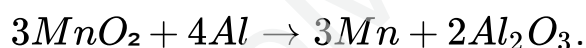
- Reduction by carbon Reduction by aluminium Reduction by heat
 Electrolytic reduction

77

The process used for the concentration of galena (PbS)

- Hydraulic washing Froth-Flotation Magnetic separation calcination

78



In this equation, the reducing agent is

- MnO_2 Al Mn Al_2O_3

79

The oxides of moderately reactive metals like zinc, iron, copper, nickel, lead and tin are reduced by using the element ' X ' as a reducing agent, then what is ' X '

- Al C Fe P

80

Concentration of froth flotation is applicable for which of the following ores?

- Al_2O_3 Te_3O_4 $Te_2O_3 \cdot 3H_2O$ ZnS

81

Which of the following processes involve the smelting process?

- $ZnCO_3 \rightarrow ZnO + CO_2$ $2 PbS + 3O_2 \rightarrow 2 PbO + 2SO_2$ $Fe_2O_3 + 3C \rightarrow 2Fe + 3CO$
 $Al_2O_3 \cdot 2H_2O \rightarrow Al_2O_3 + 2H_2O$

82

When equal mass of Zn is separately treated with H_2SO_4 and NaOH, ratio of volumes of H_2 liberated is

- 1 : 2 1 : 1 2 : 1 9 : 4

83

The metal that does not liberate H_2 gas with dil HCl or dil H_2SO_4 is

- Mg Fe Zn Pb

84

Hydrogen is not obtained when Zinc reacts with

- cold water dil HCl dil H_2SO_4 Hot NaOH

85

Hydrogen is used as a reducing agent in metallurgy of

- Zn Fe Mo Al

86

The oxides of non-reactive metals can be reduced to metals by the action of

- Reduction by heat alone Reduction by carbon Reduction by aluminium
 Electrolytic reduction

87

$2\text{Cu}_2\text{S} + 3\text{O}_2 \rightarrow 2\text{Cu}_2\text{O} + 2\text{SO}_2$; the given equation indicates the process of

- Calcination Roasting Smelting Froth Floatation

88

$\text{ZnO} + \text{X} \rightarrow \text{Zn} + \text{XO}$; In the given equation ZnO is converted into Zn metal by the reduction process. In that process, reduction takes place by the element X. Identify X and XO.

- Al, Al_2O_3 Cr, Cr_2O_3 C, CO Fe, FeO

89

What happens when an iron bar is placed in CuSO_4 solution?

- colour changes from white to blue copper displaces iron
 colour changes from blue to white iron displaces copper

90

When chlorine gas is passed in to KBr solution, a deep red colored liquid is formed. This is an example of

- combination decomposition displacement double displacement

91

Which of the following is not a correct equation ?

- $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$ $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2$
 $\text{Br}_2 + 2\text{KI} \rightarrow 2\text{KBr} + \text{I}_2$ $\text{Br}_2 + 2\text{KCl} \rightarrow 2\text{KBr} + \text{Cl}_2$

92

Oxides of potassium are reduced by

- Heat alone Carbon Aluminium electrolytic reduction

93

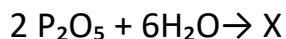
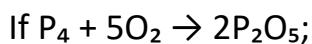
$\text{Mg} + \text{H}_2\text{O} \rightarrow \text{x} + \text{y}$;

$\text{x} + \text{H}_2\text{O} \rightarrow \text{z}$;

The nature of z is

- Acidic Basic Neutral none

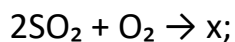
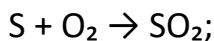
94



then the substance "X" is

- H_3PO_3 H_3PO_2 H_3PO_4 P_2O_3

95



$\text{x} + \text{H}_2\text{O} \rightarrow \text{y}$; Identify the substances 'X' and 'Y'

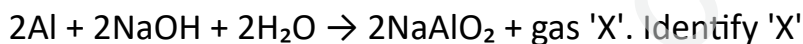
- $\text{SO}_2, \text{H}_2\text{SO}_3$ $\text{SO}_2, \text{H}_2\text{SO}_4$ $\text{SO}_3, \text{H}_2\text{SO}_3$ $\text{SO}_3, \text{H}_2\text{SO}_4$

96

The element "X" is a very reactive non-metal. It catches fire if exposed to air. To prevent the contact of "X" with atmospheric oxygen, it is stored in water. Identify 'X'.

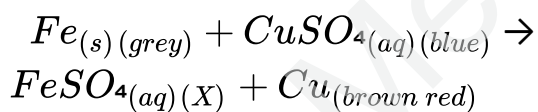
- Carbon Sulphur Phosphorus Sodium

97



- O_2 Al_2O_3 H_2 CO_2

98



Identify the colour of 'X'

- white green brown yellow

99

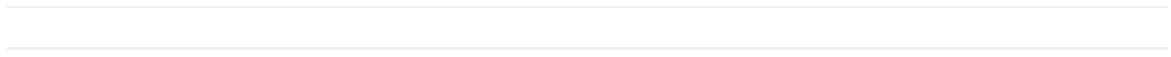
Which method is not used for the concentration of ore

- Hydraulic washing Froth - flotation Magnetic separation Roasting

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