Metals and Non-Metals

1M
1. Which metal foil is used in packing of some medicine tablets?

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2. Properties of metal can be improved by:
(A) Mixing about 0.05% Carbon with iron to make it hard and strong.

(B) Mixing with Nickel and Chromium to make stainless steel.

(C) Alloying pure gold with either copper or silver to make it hard.

(D) All of these.

1M
3. Metals react with dilute sulphuric acid to form:
(A) Metal sulphate and hydrogen gas.

(B) Metal sulphate, Water and Carbon dioxide.

(C) Metal salt and water.

(D) All of these.

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4. What are non-metals?

1M
5. Name a metal that is not corroded in air.

1M
6. Write a metal and a non metal which is liquid at room temperature.

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7. Give an example of a metal which -
(a) is the best conductor of heat
(b) is a poor conductor of heat

1M
8. Give two examples of metals which can be easily cut with a knife .

1M
9. In the electrolytic refining of a metal M, what would you take as the anode and the cathode.

1M
10. What is gangue?

1M
11. Which out of the following is not found in a free state?
(A) Gold

(B) Magnesium

(C) Silver

(D) Platinum

1M

12. Ionic compounds are generally:
(A) Solid and somewhat hard.

(B) Soluble in water.

(C) Good conductors of electricity.

(D) All of these.

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13. Define a chemical bond.

1M

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

1M

15. Write the electron - dot structure for sodium and magnesium.

1M

16. Define corrosion.

1M

17. What is flux?

1M

18. What are the metals?

1M

19. What happens when metals react with acids?

1M

20. What are amphoteric oxides?

1M

21. Name the non-metal which conducts electricity.
(A) Diamond

(B) Graphite

(C) Silver

(D) Chlorine

1M

22. is the most ductile metal.

(A) Silver

(B) Gold

(C) Aluminium

(D) Copper

1M

23. Which metal burns in air with a dazzling white flame?

(A) Sodium

(B) Iron

(C) Copper

(D) Magnesium

1M

24. Aqua regia consists of HCl and HNO_3 in the ratio:

(A) 3 : 1

(B) 1 : 3

(C) 2 : 1

(D) 1 : 2

1M

25. What are minerals?

1M

26. Best conductor of electricity is

(A) Silver

(B) Copper

(C) Aluminum

(D) Diamond

1M

27. Define ores.

1M

28. What do you understand by ores?

1M

29. What are amalgams?

1M

30. Metals react with nonmetals to form ionic compounds by

(A) Sharing of electrons

(B) Transfer of electrons

(C) Forming polar bonds

(D) All of these

1M

31. Metals conduct heat because:-

(A) Its atoms gain energy on heating, vibrate more vigorously and transfer the energy to the adjacentelectrons.

(B) Heating causes expansion that in turn conducts the heat.

(C) Heating is done all over the metal.

(D) All of these.

1M

32. Most of the metals are

(A) Lustrous

(B) Good conductors of electricity & heat

(C) Malleable & Ductile

(D) All of these

1M

33. Metals display their chemical properties because

(A) They ionize by the loss of electrons

(B) They form positively charged metal ions

(C) They get oxidized

(D) All of these

1M

34. Metal oxides like Aluminum oxide and Zinc oxide show:-

(A) Acidic properties.

(B) Basic properties.

(C) Both acidic and basic properties.

(D) Neutral properties.

1M

35. Metal oxides like Na_2O and K_2O show

(A) Acidic properties

(B) Basic properties

(C) Neutral properties

(D) Both acidic and basic properties

1M

36. Metals react with dilute acids to form salt and hydrogen gas. It is not possible to liberate hydrogen when metal reacts with

(A) Hydrochloric acid

(B) Acetic acid

(C) Nitric acid

(D) Sulphuric acid

1M

37. Which of the following describes the reaction of metals with hydrogen?

(A) $2Na\ (s) + H_2\ (g) \rightarrow 2NaH\ (s)$

(B) $Ca\ (s) + H_2\ (g) \rightarrow CaH_2\ (s)$

(C) None of these

(D) Both of these

1M

38. Most of the displacement reactions are based on the basis of

(A) Relative reactivities of metals.

(B) Ability to lose electrons more readily than other metals.

(C) Unequal reactivity of all the metals.

(D) All of these

1M

39. Corrosion of iron takes place in the presence of

(A) Air only

(B) Water only

(C) Both air and moisture

(D) Neither air nor water

1M

40. What are alloys?

1M

41. A substance from which a metal can be profitably extracted is called:-

(A) Mineral.

(B) Ore.

(C) Gangue.

(D) Crust.

1M

42. Galvanization is a method of protecting steel and iron

(A) By coating them with a thin layer of zinc

(B) By greasing the layer

(C) By anodizing

(D) By making alloys

1M

43. A homogeneous mixture of two or more metals, or a metal and a non-metal is termed as

(A) Alloy

(B) Slag

(C) Charge

(D) All of these

1M

44. Non-metals generally do not react with dilute acids because

(A) These do not displace hydrogen from dilute acids

(B) These cannot supply electrons to H^+ ions of the acid

(C) THese are electron acceptors

(D) All of these

1M

45. Reaction of metal oxides with Aluminum is

(A) Highly exothermic

(B) Highly endothermic

(C) Neither exothermic nor endothermic

(D) Not possible

1M

46. In electrolytic method of refining of metals
(A) Anode is made of pure metal

(B) Cathode is made of pure metal

(C) none of these

(D) Either anode or cathode is made up of pure metal.

1M

47. Sulphide ores are converted into their oxides by
(A) Calcination - Heating strongly in limited air

(B) Roasting - Heating strongly in excess of air

(C) Reacting them with acids

(D) All of these

1M

48. Carbonate ores are changed into oxides by
(A) Calcination - Heating strongly in limited air

(B) Roasting - Heating strongly in excess of air

(C) Reacting them with acids

(D) All of these

1M

49. Reduction of metal oxides can be done by:-
(A) Simple heating for less reactive metals.

(B) Heating with Carbon for metals in the middle of the reactivity series.

(C) Electrolytic reduction in case of highly reactive metals.

(D) All are correct.

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50. What chemical process is used for obtaining a metal from its oxides?

1M

51. The process of metallurgical operations consists of mainly

(A) Enrichment of ores

(B) Reduction

(C) Refining

(D) All of these

2M

52. Which type of metals are found in free state in the earth's crust?

2M

53. Which gas is evolved when magnesium reacts with very dilute nitric acid? Write the equation involved.

2M

54. Name two metals which will displace hydrogen from dilute acid and two metals which will not.

2M

55. What is an alloy?

2M

56. What do you understand by Aquaregia?

2M

57. Explain why is sodium Kept immersed in kerosene oil?

2M

58. What do you understand by metallurgy?

2M

59. Define malleability.

2M

60. What do you understand by metals?

2M

61. Give two uses of Aluminium.

2M

62. Explain why zinc metal can displace copper from copper sulphate solution but copper cannot displace zinc from zinc sulphate solution.

2M

63. What are the products formed, when silicon reacts with hydrochloric acid? Write the necessary equation.

2M

64. Why the reaction of metals with water, hydrogen and acid cannot be used to compare the reactivity of metals?

2M

65. Define activity series of metals.

2M

66. What are electrovalent or ionic compounds?

3M

67. What is chemical name and formula of limestone? What happens when limestone is strongly
heated?
Write the chemical equation involved. How can the presence of excess of CO_2 be tested in a class room from the products formed.

3M

68. Why do electrovalent compounds have high melting and boiling points?

3M

69. Write two advantages and one limitation of using carbon as reducing agent in the metallurgy.

3M

70. What happens when zinc is added to a solution of iron(II) sulphate? Write the chemical reaction.

3M

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

3M

72. Write equation for the reaction of
(a) Calcium with water
(b) Potassium with water
(c) Zinc with dilute hydrochloric acid

5M

73. a) What are alloys
(b) How are they made?
(c) Write the properties of alloys?

5M

74. a) What is the difference between calcination and roasting?
(b) Descibe the extraction of metals which are at the top of the activity series with an example.
(c) Write the composition of the alloy solder

5M

75. Represent the formation of MgO and Na_2O by the transfer of electrons. Name the ions present in these compounds.

5M

76. What is rusting of iron? Write any two common methods to prevent rusting.

5M

77. 81. a) <javascript:>How is mercury extracted from Cinnabar

(b) Describe the electrolytic refining of copper.

5M

78. (a) Draw a flowchart showing the different steps involved in the extraction of metals from their ores.

(b) Give reasons

(i) Ionic compounds do not conduct electricity in solid states.

(ii) Metals such as Sodium and Potassium are stored in Kerosene.

5M

79. (a) Distinguish between ionic compounds and covalent compounds under the following properties.

(i) Strength of force between constituent elments.

(ii) Solubility of compounds in water.

(iii) Electrical conduction in substance.

(b) Explain how in the following metals are obtained from their compounds by the reduction process.

(i) Metal M which is in the middle of the reactivity series.

(ii) Metal N which is high up in the reactivity series. Give one example of each type.

5M

80. (a) Draw a labeled diagram to show the experimental setup of reaction of metals with steam.

(b) Give reasons

(i) Hydrogen gas is not evolved when metals react with Nitric acid

(ii) Why are food cans coated with tin?

(c) Write the composition of stainless steel