

ACHIEVERS FOUNDATION

CBSE 10 :METALS AND NON-METALS - 100 MCQs

Max Time: 90 min

Max Marks: 100

SECTION A - BASIC CONCEPTS

1. Which of the following is a metal?

- A. Sulphur
- B. Carbon
- C. Sodium
- D. Phosphorus

2. Which of the following is a non-metal?

- A. Iron
- B. Copper
- C. Aluminium
- D. Sulphur

3. The property by which metals can be beaten into thin sheets is called:

- A. Ductility
- B. Malleability
- C. Sonority
- D. Conductivity

4. The property by which metals can be drawn into wires is called:

- A. Malleability
- B. Ductility
- C. Sonority
- D. Lustre

5. Which metal is liquid at room temperature?

- A. Sodium
- B. Mercury
- C. Aluminium
- D. Iron

6. Which non-metal is lustrous?

- A. Sulphur
- B. Iodine
- C. Phosphorus
- D. Nitrogen

7. Which metal is the best conductor of electricity among the following?

- A. Iron
- B. Copper
- C. Silver
- D. Aluminium

8. Which of the following metals is soft enough to be cut with a knife?

- A. Iron
- B. Copper
- C. Sodium
- D. Zinc

9. Metals generally have:

- A. Low melting points
- B. High melting points
- C. No melting point
- D. Extremely low boiling points

10. Which of the following is a sonorous metal?

- A. Iron
- B. Sulphur
- C. Carbon
- D. Phosphorus

SECTION B - REACTION WITH OXYGEN

11. Metals generally react with oxygen to form:

- A. Metal chlorides
- B. Metal oxides
- C. Metal sulphides
- D. Metal carbonates

12. Which of the following metal oxides is amphoteric?

- A. Na_2O
- B. MgO
- C. Al_2O_3
- D. CaO

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13. Aluminium does not corrode easily because:

- A. It is below hydrogen in the activity series
- B. It forms a protective oxide layer
- C. It does not react with oxygen
- D. It is a non-metal

14. Which metal oxide is basic in nature?

- A. CO_2
- B. SO_2
- C. MgO
- D. SO_3

15. Which oxide is acidic in nature?

- A. Na_2O
- B. MgO
- C. CaO
- D. SO_2

16. Magnesium ribbon is cleaned before burning because:

- A. It has a layer of magnesium oxide on its surface
- B. It contains water
- C. It reacts with nitrogen
- D. It is coated with magnesium chloride

17. Magnesium burns in air with a:

- A. Yellow flame
- B. Blue flame
- C. Dazzling white flame
- D. Green flame

18. The product formed when magnesium burns in oxygen is:

- A. $\text{Mg}(\text{OH})_2$
- B. MgO
- C. MgCO_3
- D. MgSO_4

19. Which metal does not react readily with oxygen?

- A. Potassium
- B. Sodium
- C. Gold
- D. Magnesium

20. Metals such as potassium and sodium are stored under:

- A. Water
- B. Alcohol
- C. Kerosene
- D. Petrol

SECTION C - REACTION WITH WATER

21. Which metal reacts violently with cold water?

- A. Copper
- B. Iron
- C. Sodium
- D. Silver

22. Sodium reacts with water to produce:

- A. Sodium oxide and hydrogen
- B. Sodium hydroxide and hydrogen
- C. Sodium chloride and oxygen
- D. Sodium carbonate and hydrogen

23. The reaction of calcium with water produces:

- A. Calcium oxide and hydrogen
- B. Calcium hydroxide and hydrogen
- C. Calcium chloride and hydrogen
- D. Calcium carbonate and oxygen

24. Which metal reacts slowly with cold water but reacts faster with hot water?

- A. Magnesium
- B. Sodium
- C. Potassium
- D. Copper

25. Which metal reacts with steam to form its oxide and hydrogen?

- A. Iron
- B. Copper
- C. Silver
- D. Gold

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26. Which metal does not react with water under ordinary conditions?

- A. Sodium
- B. Calcium
- C. Magnesium
- D. Copper

27. When iron reacts with steam, the product formed is:

- A. FeO
- B. Fe₂O₃
- C. Fe₃O₄
- D. Fe(OH)₃

28. Hydrogen gas evolved when sodium reacts with water can catch fire because:

- A. The reaction is highly exothermic
- B. Sodium is a non-metal
- C. Water is acidic
- D. Hydrogen is non-combustible

29. Which metal reacts with water less vigorously than sodium?

- A. Potassium
- B. Calcium
- C. Lithium
- D. Rubidium

30. Which of the following metals is generally found in nature in the free state?

- A. Sodium
- B. Potassium
- C. Gold
- D. Calcium

SECTION D - REACTION WITH ACIDS

31. Metals generally react with dilute acids to produce:

- A. Salt and oxygen
- B. Salt and hydrogen
- C. Salt and nitrogen
- D. Oxide and hydrogen

32. Which metal does NOT react with dilute hydrochloric acid?

- A. Zinc
- B. Magnesium
- C. Iron
- D. Copper

33. Zinc reacts with dilute HCl to produce:

- A. ZnCl₂ and H₂
- B. ZnO and H₂
- C. ZnCl₂ and O₂
- D. ZnSO₄ and H₂

34. Which gas is evolved when zinc reacts with dilute sulphuric acid?

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

35. Hydrogen gas can be identified by:

- A. Lime-water test
- B. Pop sound
- C. Turning blue litmus red
- D. Burning with a green flame

36. Copper does not liberate hydrogen from dilute HCl because:

- A. Copper is above hydrogen in the activity series
- B. Copper is below hydrogen in the activity series
- C. HCl is a weak acid
- D. Copper is a non-metal

37. Which acid generally does not evolve hydrogen with metals because it is a strong oxidising agent?

- A. HCl
- B. Dilute H₂SO₄
- C. HNO₃
- D. CH₃COOH

38. Aqua regia is a mixture of concentrated HCl and concentrated HNO₃ in the ratio:

- A. 1:1
- B. 1:2
- C. 3:1
- D. 2:3

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39. Aqua regia is capable of dissolving:

- A. Sodium only
- B. Gold and platinum
- C. Aluminium only
- D. Zinc only

40. Which metal is attacked by concentrated nitric acid but generally does not liberate hydrogen?

- A. Copper
- B. Sodium
- C. Calcium
- D. Magnesium

SECTION E - REACTION WITH BASES

41. Which metal reacts with strong bases such as NaOH?

- A. Copper
- B. Aluminium
- C. Silver
- D. Gold

42. Aluminium reacts with sodium hydroxide to produce sodium aluminate and:

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

43. Zinc reacts with NaOH because zinc is:

- A. Acidic
- B. Amphoteric
- C. Neutral
- D. A non-metal

44. Which of the following is an amphoteric oxide?

- A. Na_2O
- B. CO_2
- C. Al_2O_3
- D. SO_2

45. An amphoteric oxide reacts with:

- A. Acids only
- B. Bases only
- C. Both acids and bases
- D. Neither acids nor bases

SECTION F - REACTIVITY SERIES

46. Which is the most reactive metal among the following?

- A. Cu
- B. Zn
- C. K
- D. Ag

47. Which is the least reactive metal among the following?

- A. K
- B. Zn
- C. Fe
- D. Au

48. The correct decreasing order of reactivity is:

- A. $\text{K} > \text{Na} > \text{Ca} > \text{Mg}$
- B. $\text{Mg} > \text{Ca} > \text{Na} > \text{K}$
- C. $\text{Na} > \text{K} > \text{Mg} > \text{Ca}$
- D. $\text{Ca} > \text{K} > \text{Na} > \text{Mg}$

49. Which metal can displace copper from copper sulphate solution?

- A. Silver
- B. Gold
- C. Zinc
- D. Platinum

50. Which metal cannot displace zinc from zinc sulphate solution?

- A. Magnesium
- B. Aluminium
- C. Copper
- D. Sodium

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51. When an iron nail is placed in CuSO_4 solution, the solution gradually becomes:

- A. Colourless
- B. Green
- C. Yellow
- D. Black

52. The reddish-brown deposit formed on an iron nail placed in CuSO_4 is:

- A. Iron oxide
- B. Copper
- C. Copper oxide
- D. Iron sulphate

53. The reaction $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$ is an example of:

- A. Combination reaction
- B. Decomposition reaction
- C. Displacement reaction
- D. Neutralisation reaction

54. Which metal can displace iron from FeSO_4 solution?

- A. Copper
- B. Silver
- C. Zinc
- D. Gold

55. Which metal cannot displace hydrogen from dilute acids?

- A. Magnesium
- B. Zinc
- C. Iron
- D. Copper

56. A metal placed below hydrogen in the reactivity series generally:

- A. Liberates hydrogen from dilute acids
- B. Does not liberate hydrogen from dilute acids
- C. Reacts violently with water
- D. Always forms hydroxides

57. Which of the following is more reactive than iron?

- A. Copper
- B. Silver
- C. Zinc
- D. Gold

58. Which metal is placed between aluminium and iron in the common reactivity series?

- A. Zinc
- B. Copper
- C. Silver
- D. Gold

59. A metal X displaces copper from CuSO_4 but does not displace zinc from ZnSO_4 . X could be:

- A. Mg
- B. Fe
- C. Ag
- D. K

60. Which pair contains metals that are both highly reactive?

- A. K and Na
- B. Cu and Ag
- C. Au and Pt
- D. Fe and Cu

SECTION G – IONIC COMPOUNDS

61. Ionic compounds are formed by:

- A. Sharing of electrons only
- B. Transfer of electrons
- C. Sharing of protons
- D. Transfer of neutrons

62. Sodium chloride is an example of:

- A. Covalent compound
- B. Ionic compound
- C. Metallic compound
- D. Molecular element

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63. Sodium forms Na^+ by:

- A. Gaining one electron
- B. Losing one electron
- C. Gaining two electrons
- D. Sharing two electrons

64. Chlorine forms Cl^- by:

- A. Losing one electron
- B. Gaining one electron
- C. Losing two electrons
- D. Sharing three electrons

65. The formula of magnesium chloride is:

- A. MgCl
- B. Mg_2Cl
- C. MgCl_2
- D. Mg_2Cl_2

66. The formula of aluminium oxide is:

- A. AlO
- B. Al_2O_3
- C. AlO_2
- D. Al_3O_2

67. Ionic compounds generally have:

- A. Low melting points
- B. High melting points
- C. No melting point
- D. Very low boiling points

68. Ionic compounds conduct electricity in molten state because:

- A. Molecules become smaller
- B. Ions become free to move
- C. Electrons disappear
- D. Atoms become neutral

69. Solid NaCl does not conduct electricity because:

- A. It contains no ions
- B. Its ions are not free to move
- C. It contains only electrons
- D. It has a low melting point

70. Ionic compounds are generally soluble in:

- A. Kerosene
- B. Petrol
- C. Water
- D. Benzene

SECTION H - METALLURGY

71. Minerals containing a high percentage of metal from which extraction is economical are called:

- A. Gangue
- B. Ores
- C. Slags
- D. Fluxes

72. Unwanted impurities associated with ores are called:

- A. Flux
- B. Gangue
- C. Slag
- D. Alloy

73. The process of removing gangue from an ore is called:

- A. Refining
- B. Concentration
- C. Reduction
- D. Smelting

74. Sulphide ores are commonly converted into oxides by:

- A. Roasting
- B. Calcination
- C. Electrolysis
- D. Reduction

75. Roasting is generally carried out in:

- A. Excess air
- B. Absence of air
- C. Water
- D. Hydrogen

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76. Calcination is generally carried out in:

- A. Excess oxygen
- B. Limited or no air
- C. Pure nitrogen only
- D. Water

77. Carbonate ores are generally converted into oxides by:

- A. Roasting
- B. Calcination
- C. Electrolysis
- D. Distillation

78. The reduction of metal oxide generally results in:

- A. Formation of the metal
- B. Formation of water only
- C. Formation of a non-metal
- D. Formation of gangue

79. Metals high in the reactivity series are generally extracted by:

- A. Heating with carbon
- B. Electrolysis
- C. Simple heating
- D. Roasting alone

80. Which metal is commonly extracted by electrolysis of its molten compound?

- A. Sodium B. Iron C. Copper D. Zinc

81. Aluminium is extracted from alumina by:

- A. Reduction with carbon
- B. Electrolysis
- C. Heating alone
- D. Displacement with iron

82. In electrolytic extraction of aluminium, cryolite is added mainly to:

- A. Increase the melting point
- B. Lower the melting point and improve conductivity
- C. Act as a reducing agent
- D. Produce oxygen

83. Metals in the middle of the reactivity series are generally extracted by:

- A. Electrolysis only
- B. Reduction of their oxides
- C. Simple filtration
- D. Sublimation

84. Which reducing agent is commonly used in the extraction of iron?

- A. Carbon monoxide
- B. Oxygen
- C. Nitrogen
- D. Hydrogen chloride

85. The chief ore of aluminium is:

- A. Haematite
- B. Bauxite
- C. Galena
- D. Cinnabar

86. Haematite is an ore of:

- A. Aluminium
- B. Iron
- C. Copper
- D. Zinc

87. Zinc blende is an ore of:

- A. Zinc
- B. Iron
- C. Aluminium
- D. Copper

88. Cinnabar is an ore of:

- A. Zinc
- B. Mercury
- C. Copper
- D. Iron

89. The substance added during extraction to combine with gangue is called:

- A. Ore B. Flux C. Slag D. Electrolyte

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590. Flux combines with gangue to form:

- A. Ore
- B. Metal
- C. Slag
- D. Alloy

SECTION I - REFINING AND CORROSION

91. The process of obtaining a pure metal from an impure metal is called:

- A. Concentration
- B. Refining
- C. Roasting
- D. Calcination

92. Electrolytic refining is commonly used for:

- A. Copper
- B. Sodium
- C. Calcium
- D. Potassium

93. During electrolytic refining of copper, the impure copper is used as:

- A. Cathode
- B. Anode
- C. Electrolyte
- D. Salt bridge

94. In electrolytic refining of copper, pure copper is deposited at the:

- A. Anode
- B. Cathode
- C. Bottom of the tank only
- D. Electrolyte surface

95. Insoluble impurities settle below the anode during copper refining as:

- A. Slag
- B. Anode mud
- C. Gangue
- D. Flux

96. Corrosion of iron is commonly known as:

- A. Tarnishing
- B. Rusting
- C. Galvanisation
- D. Alloying

97. Rust is mainly:

- A. FeO
- B. Fe₂O₃
- C. Hydrated iron(III) oxide
- D. Fe₃O₄ only

98. Rusting of iron requires:

- A. Oxygen only
- B. Water only
- C. Both oxygen and water
- D. Nitrogen and carbon dioxide

99. Galvanisation protects iron by coating it with:

- A. Copper
- B. Zinc
- C. Aluminium
- D. Silver

100. Which of the following is the best method to prevent rusting of an iron object?

- A. Keeping it in moist air
- B. Coating it with a suitable protective layer
- C. Washing it continuously with water
- D. Heating it repeatedly

ANSWER KEY

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Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	26	D	51	B	76	B
2	D	27	C	52	B	77	B
3	B	28	A	53	C	78	A
4	B	29	B	54	C	79	B
5	B	30	C	55	D	80	A
6	B	31	B	56	B	81	B
7	C	32	D	57	C	82	B
8	C	33	A	58	A	83	B
9	B	34	B	59	B	84	A
10	A	35	B	60	A	85	B
11	B	36	B	61	B	86	B
12	C	37	C	62	B	87	A
13	B	38	C	63	B	88	B

Q	Ans	Q	Ans	Q	Ans	Q	Ans
14	C	39	B	64	B	89	B
15	D	40	A	65	C	90	C
16	A	41	B	66	B	91	B
17	C	42	B	67	B	92	A
18	B	43	B	68	B	93	B
19	C	44	C	69	B	94	B
20	C	45	C	70	C	95	B
21	C	46	C	71	B	96	B
22	B	47	D	72	B	97	C
23	B	48	A	73	B	98	C
24	A	49	C	74	A	99	B
25	A	50	C	75	A	100	B

Metals & Non Metals : Higher Difficulty Level Questions

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1. A metal X reacts with water to form a soluble hydroxide and hydrogen. The reaction is so vigorous that the hydrogen catches fire. X is most likely:

A. Mg B. Ca C. Na D. Fe

2. An element X has electronic configuration 2,8,1 and Y has configuration 2,8,7. The compound formed between X and Y will most likely:

A. Have low melting point and conduct electricity in solid state
B. Be formed by sharing of electrons
C. Have high melting point and conduct electricity in molten state
D. Be a covalent compound with a low boiling point

3. A student places equal-sized pieces of Mg, Zn, Fe and Cu in separate test tubes containing dilute HCl. Which observation is expected?

A. Cu produces the maximum amount of H_2
B. Mg reacts most vigorously among the four
C. Fe reacts more vigorously than Mg
D. Zn does not react with HCl

4. Which of the following reactions is **not possible**?

A. $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
B. $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$
C. $Cu + ZnSO_4 \rightarrow CuSO_4 + Zn$
D. $Mg + FeSO_4 \rightarrow MgSO_4 + Fe$

5. A metal X displaces iron from $FeSO_4$ but cannot displace magnesium from $MgSO_4$. Which could X be?

A. Zn B. Cu C. Na D. Ca

6. Consider the reactions:

I. $Mg + 2HCl \rightarrow MgCl_2 + H_2$
II. $Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$
III. $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

Which statement is correct?

A. Only I is a displacement reaction
B. Only II is a displacement reaction
C. II and III are displacement reactions
D. All three are displacement reactions

7. A student adds sodium to water but notices that the reaction is extremely vigorous. Which combination of properties best explains this?

A. Sodium has low reactivity and high density
B. Sodium is highly reactive and the reaction is highly exothermic
C. Sodium is below hydrogen in the reactivity series
D. Sodium is a poor conductor of heat

8. Which pair contains **only amphoteric oxides**?

A. Na_2O and MgO
B. Al_2O_3 and ZnO
C. CO_2 and SO_2
D. CaO and CuO

9. Aluminium is quite reactive, yet aluminium utensils are commonly used because:

A. Aluminium does not react with oxygen
B. Aluminium is below hydrogen in the reactivity series
C. A protective layer of Al_2O_3 forms on its surface
D. Aluminium reacts only with acids

10. Which observation most strongly indicates that an ionic compound has been formed?

A. It has a low melting point and is soluble in organic solvents
B. It conducts electricity in solid state
C. It has a high melting point and conducts electricity in molten state
D. It consists of molecules having shared electron pairs

11. Four metals P, Q, R and S show the following behaviour:

- P displaces Q from its salt solution.

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- R displaces P from its salt solution.
- S cannot displace R.
- Q cannot displace S.

Which could represent the correct order of decreasing reactivity?

- A. $R > P > Q > S$
- B. $S > Q > P > R$
- C. $P > R > S > Q$
- D. $Q > P > R > S$

12. A metal X reacts with dilute HCl but does not react with water at room temperature. X could be:

- A. Sodium
- B. Calcium
- C. Magnesium
- D. Potassium

13. Which metal can be extracted from its oxide by heating with carbon?

- A. Sodium
- B. Aluminium
- C. Zinc
- D. Potassium

14. A student tries to extract sodium from sodium oxide by heating it with carbon. The attempt fails because:

- A. Sodium oxide is acidic
- B. Sodium is less reactive than carbon
- C. Sodium is more reactive than carbon
- D. Carbon cannot react with oxides

15. Which metal is most likely to occur in the native/free state in nature?

- A. K B. Ca C. Au D. Al

16. If metal A is above metal B in the reactivity series, which statement is definitely correct?

- A. A can always displace B from its oxide
- B. A can displace B from its salt solution under suitable conditions
- C. B can displace A from its salt solution
- D. A must have a lower melting point than B

17. A strip of metal X is placed separately in solutions of CuSO_4 and ZnSO_4 . It displaces copper but not zinc. X could be:

- A. Mg B. Fe C. Ag D. Na

18. Which metal can be used to recover copper from CuSO_4 solution but should **not** be used if the intention is to obtain very pure copper directly?

- A. Zn B. Fe C. Ag D. Au

19. Which equation represents a reaction in which the metal undergoes oxidation?

- A. $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$
- B. $\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$
- C. $\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^-$
- D. $\text{O}_2 + 4\text{e}^- \rightarrow 2\text{O}^{2-}$

20. When zinc granules are added to copper sulphate solution, the blue colour gradually fades because:

- A. CuSO_4 decomposes on heating
- B. Zn^{2+} ions are blue
- C. Cu^{2+} ions are removed from solution and Zn^{2+} ions are formed
- D. Copper reacts with water

21. An iron nail is dipped in CuSO_4 solution. After some time, which combination is expected?

- A. Blue solution remains unchanged; silver deposit forms
- B. Greenish solution forms; reddish-brown copper deposits
- C. Colourless solution forms; black iron deposits
- D. Yellow solution forms; zinc deposits

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22. Why does copper not displace zinc from ZnSO_4 ?

- A. Copper is more reactive than zinc
- B. Copper is less reactive than zinc
- C. Copper reacts only with acids
- D. ZnSO_4 is insoluble

23. Which reaction would produce **no visible change**?

- A. $\text{Zn} + \text{CuSO}_4$
- B. $\text{Fe} + \text{CuSO}_4$
- C. $\text{Cu} + \text{AgNO}_3$
- D. $\text{Ag} + \text{CuSO}_4$

24. A metal reacts with oxygen to form an oxide that reacts with both HCl and NaOH . The metal is most likely:

- A. Na
- B. Al
- C. Ca
- D. K

25. Why are highly reactive metals not generally extracted by reduction of their oxides using carbon?

- A. Their oxides are unstable
- B. Carbon is more reactive than all metals
- C. These metals have a greater affinity for oxygen than carbon
- D. Carbon cannot conduct electricity

26. Which sequence correctly represents the major steps involved in obtaining a metal from its ore?

- A. Refining $\rightarrow$ concentration $\rightarrow$ extraction $\rightarrow$ roasting
- B. Concentration $\rightarrow$ extraction/reduction $\rightarrow$ refining
- C. Roasting $\rightarrow$ refining $\rightarrow$ concentration
- D. Reduction $\rightarrow$ concentration $\rightarrow$ refining

27. Sulphide ore of a metal is heated strongly in excess air. The principal purpose is to:

- A. Convert sulphide into oxide
- B. Convert oxide into sulphide

- C. Remove metal from its salt solution
- D. Convert carbonate into sulphide

28. Which process is most appropriate for converting a carbonate ore into its oxide?

- A. Roasting
- B. Calcination
- C. Electrolysis
- D. Displacement

29. A metal oxide reacts with carbon monoxide to produce molten metal and CO_2 . This method is most appropriate for a metal:

- A. At the top of the reactivity series
- B. In the middle of the reactivity series
- C. At the bottom of the reactivity series only
- D. More reactive than aluminium

30. In the extraction of iron, limestone is added mainly because it:

- A. Acts as a reducing agent
- B. Produces oxygen
- C. Helps remove impurities by forming slag
- D. Converts iron into iron sulphide

31. During electrolytic refining of copper, the correct arrangement is:

- A. Pure Cu anode, impure Cu cathode
- B. Impure Cu anode, pure Cu cathode
- C. Both electrodes made of pure Cu
- D. Both electrodes made of impure Cu

32. During electrolytic refining of copper, anode mud may contain:

- A. Na and K
- B. Au and Ag
- C. Al and Mg
- D. Ca and Na

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33. Why does pure copper get deposited at the cathode during electrolytic refining?

- A. Cu atoms gain electrons and deposit as copper
- B. Cu atoms lose electrons at the cathode
- C. Sulphate ions deposit copper
- D. The cathode dissolves into the solution

34. Element X has 2 valence electrons and element Y has 7 valence electrons. The formula of the compound formed is most likely:

- A. XY
- B. XY_2
- C. X_2Y
- D. X_2Y_7

35. Which statement about ionic compounds is **incorrect**?

- A. They have high melting points
- B. They are generally crystalline solids
- C. They conduct electricity in aqueous solution
- D. They conduct electricity efficiently in solid state

36. Solid NaCl does not conduct electricity, but molten NaCl does because:

- A. Electrons are released on melting
- B. Ions become free to move in molten state
- C. NaCl becomes covalent on melting
- D. Sodium becomes a non-metal

37. Which pair would most likely form an ionic compound?

- A. C and H
- B. N and H
- C. Na and Cl
- D. Cl and Cl

38. An iron gate is coated with zinc. Even if a small scratch develops in the coating, zinc can still provide protection because:

- A. Zinc is less reactive than iron
- B. Zinc is more reactive than iron and can act as a sacrificial metal
- C. Zinc does not react with oxygen
- D. Iron becomes a non-metal

39. Which situation will cause iron to rust most rapidly?

- A. Dry air
- B. Boiled water covered with oil
- C. Moist air containing dissolved salts
- D. Completely oxygen-free water

40. Stainless steel resists corrosion better than ordinary iron mainly because:

- A. It contains no iron
- B. It is a pure metal
- C. Alloying changes its properties and improves corrosion resistance
- D. Iron cannot form alloys

41. Three metals X, Y and Z have the following properties:

- X reacts with cold water.
- Y reacts with steam but not cold water.
- Z does not react with dilute HCl.

The correct possible identification is:

- A. X = Na, Y = Fe, Z = Cu
- B. X = Cu, Y = Na, Z = Fe
- C. X = Fe, Y = Cu, Z = Na
- D. X = Zn, Y = Na, Z = Mg

42. Metal X forms X^{2+} ions and metal Y forms Y^{3+} ions. The formula of the compound formed between X and Y is:

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- A. XY
- B. X_2Y_3
- C. X_3Y_2
- D. XY_2

43. A student has four oxides: Na_2O , Al_2O_3 , CO_2 and MgO . Which oxide can react with both an acid and a base?

- A. Na_2O
- B. Al_2O_3
- C. CO_2
- D. MgO

44. If an unknown metal displaces hydrogen from dilute HCl but does not displace iron from $FeSO_4$, its position is most likely:

- A. Above Fe but below H
- B. Above H but below Fe
- C. Below H and below Fe
- D. Above Fe and above H

45. Which statement provides the **strongest evidence** that a metal is more reactive than another metal?

- A. It has a higher density
- B. It has a higher melting point
- C. It displaces the other metal from its salt solution
- D. It has a brighter lustre

46. Metal A reacts with dilute HCl and liberates H_2 . Metal B does not react with dilute HCl. However, A cannot displace B from its salt solution. Which conclusion is most appropriate?

- A. A must be less reactive than B
- B. B must be above hydrogen
- C. A and B may have positions that do not allow displacement under the given conditions
- D. A cannot be a metal

47. Which combination is correctly matched?

- A. Bauxite — Fe
- B. Haematite — Al
- C. Zinc blende — Zn
- D. Cinnabar — Cu

48. A metal M is extracted by electrolysis of its molten chloride. Which conclusion is most reasonable?

- A. M is highly reactive
- B. M is below copper
- C. M can easily be extracted using carbon
- D. M is a noble metal

49. A substance has the following properties:

- High melting point
- Brittle
- Soluble in water
- Conducts electricity in molten state but not in solid state

The substance is most likely:

- A. Metallic
- B. Ionic
- C. Covalent molecular
- D. Non-metallic element

50. Which statement correctly explains why gold is found in the free state in nature?

- A. Gold reacts rapidly with oxygen
- B. Gold is highly reactive
- C. Gold is very unreactive and does not readily form compounds
- D. Gold is above potassium in the reactivity series

ANSWERS

ACHIEVERS FOUNDATION

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	11	A	21	B	31	B	41	A
2	C	12	C	22	B	32	B	42	C
3	B	13	C	23	D	33	A	43	B
4	C	14	C	24	B	34	B	44	D
5	A	15	C	25	C	35	D	45	C
6	D	16	B	26	B	36	B	46	C
7	B	17	B	27	A	37	C	47	C
8	B	18	A	28	B	38	B	48	A
9	C	19	B	29	B	39	C	49	B
10	C	20	C	30	C	40	C	50	C

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