

SECTION-01 - BE-01

BASICS OF SCIENCE AND ENGINEERING

PHYSICS

1. Units and Measurements
2. Classical Mechanics
3. Electric Current
4. Heat and Thermometry
5. Wave Motion, Optics and Acoustics

CHEMISTRY

6. Chemical Reactions and Equations
7. Acids, Bases and Salts
8. Metals and Non-Metals

COMPUTER PRACTICE

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ENVIRONMENT SCIENCES

10. Environmental Sciences

8. Metals and Non-Metals

Multiple Choice Questions (MCQs)

1. Which of the following pairs will give displacement reactions ?
 - (a) NaCl solution and copper metal
 - (b) $MgCl_2$ solution and aluminium metal
 - (c) $FeSO_4$ solution and silver metal
 - (d) $AgNO_3$ solution and copper metal

Ans. : (d)
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

Ans. : (c)
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

Ans. : (a)
4. Food cans are coated with tin and 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

Ans. : (c)
5. An ore of manganese metal is :
 - (a) bauxite
 - (b) haematite
 - (c) cuprite
 - (d) pyrolusite

Ans. : (d)
6. Which of the following is an iron ore ?
 - (a) cinnabar
 - (b) calamine
 - (c) haematite
 - (d) rock salt

Ans. : (c)
7. The metal which can be extracted from the bauxite ore is
 - (a) Na
 - (b) Mn
 - (c) Al
 - (d) Hg

Ans. : (c)
8. The two metals which can be extracted just by heating their sulphides in air are :
 - (a) sodium and copper
 - (b) copper and aluminium
 - (c) potassium and zinc
 - (d) mercury and copper

Ans. : (d)
9. A common metal which is highly resistant to corrosion is :
 - (a) iron
 - (b) copper
 - (c) aluminium
 - (d) magnesium

Ans. : (c)
10. An important ore of zinc metal is :
 - (a) calamine
 - (b) cuprite
 - (c) pyrolusite
 - (d) haematite

Ans. : (a)
11. The major ore of aluminium is known as :
 - (a) cinnabar
 - (b) calamine
 - (c) bauxite
 - (d) pyrolusite

Ans. : (c)
12. The two metals which are extracted means of electrolytic reduction of their molten salts are :
 - (a) magnesium and manganese
 - (b) iron and aluminium
 - (c) zinc and magnesium
 - (d) magnesium and aluminium

Ans. : (d)
13. In stainless steel alloy, iron metal is mixed with :
 - (a) Cu and Cr
 - (b) Cr and Ni
 - (c) Cr and Sn
 - (d) Cu and Ni

Ans. : (b)
14. If copper is kept exposed to damp air for a considerable time, it gets a green coating on its surface. This is due to formation of :
 - (a) hydrated copper sulphate
 - (b) copper oxide
 - (c) basic copper carbonate
 - (d) copper nitrate

Ans. : (c)

15. Which of the following alloys contains mercury as one of the constituents ?

- (a) stainless steel (b) solder
(c) duralumin (d) zinc amalgam

Ans. : (d)

16. Which of the following is an ore of mercury metal ?

- (a) rock salt (b) cinnabar
(c) calamine (d) haematite

Ans. : (b)

17. Calamine ore can be used to extract one of the following metals. The metal is :

- (a) copper (b) mercury
(c) aluminium (d) zinc

Ans. : (d)

18. Which of the following pair of metals exists in their native state in nature ?

- (a) Ag and Hg (b) Ag and Zn
(c) Au and Hg (d) Au and Ag

Ans. : (d)

19. Which of the following reactants are used to carry out the thermite reaction required for welding the broken railway tracks ?

- (a) $Al_2O_3 + Fe$ (b) $MnO_2 + Al$
(c) $Fe_2O_3 + Al$ (d) $Cu_2O + Fe$

Ans. : (b)

20. Which of the following alloys contains a non-metal as one of the constituents ?

- (a) brass (b) amalgam
(c) steel (d) bronze

Ans. : (c)

21. During the refining of an impure metal by electrolysis the pure metal is deposited :

- (a) at cathode
(b) on the walls of electrolytic tank
(c) at anode
(d) at the bottom of electrolytic tank

Ans. : (a)

22. Which of the following metals can be obtained from haematite ore ?

- (a) copper (b) sodium
(c) zinc (d) iron

Ans. : (d)

23. Brass is an alloy of :

- (a) Cu and Sn (b) Cu and Pb
(c) Pb and Sn (d) Zn and Cu

Ans. : (d)

24. The metal which is always present in amalgam is :

- (a) iron (b) aluminium
(c) mercury (d) magnesium

Ans. : (c)

25. Manganese metal is extracted from manganese dioxide a reduction process by making use of :

- (a) carbon (b) hydrogen
(c) electrolysis (d) aluminium

Ans. : (d)

26. The metal which can be extracted simply by heating the cinnabar ore in air is :

- (a) Zn (b) Cu
(c) Al (d) Hg

Ans. : (d)

27. During galvanisation, iron metal is given a thin coating of one of the following metals. This metal is

- (a) chromium (b) tin
(c) zinc (d) copper

Ans. : (c)

28. Which of the following metals are extracted by the electrolysis of their molten chlorides ?

- (a) Na and Hg (b) Hg and Mg
(c) Na and Mg (d) Cu and Fe

Ans. : (c)

29. Rock salt is an ore of one of the following metals. This metal is :

- (a) Mn (b) Na
(c) Fe (d) Cu

Ans. : (b)

30. The articles made of silver metal become dark on prolonged exposure to air. This is due to the formation of a layer of its :

- (a) oxide (b) hydride
(c) sulphide (d) carbonate

Ans. : (c)

31. A sulphate ore is converted into metal oxide by the process of :

- (a) carbonation (b) roasting
(c) calcination (d) anodising

Ans. : (b)

32. The metal which can be extracted from pyrolusite ore is :

- (a) mercury (b) manganese
(c) aluminium (d) magnesium

Ans. : (b)

33. Calamine ore can be converted into zinc oxide by the process of :

- (a) dehydration (b) roasting
(c) calcination (d) Sulphonation

Ans. : (c)