

**RAMCO INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF CHEMISTRY**  
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**Multiple Choice Questions - HIGHER SECONDARY SECOND YEAR – CHEMISTRY**  
**Unit-I Metallurgy and Unit-II p-block elements - I**

1. Which metals have least chemical reactivity?
  - a. Copper
  - b. Nickel
  - c. Iron
  - d. Chromium
  
2. Ore of Lead is
  - a. Bauxite
  - b. Cuprite
  - c. Anglesite
  - d. Prousitite
  
3. The Chemical composition of Malachite is
  - a.  $\text{Cu}_2\text{S}$
  - b.  $\text{Cu}_2\text{O}$
  - c.  $\text{FeCO}_3$
  - d.  $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$
  
4. The method commonly used to concentrate Sulphide ores are
  - a. Leaching
  - b. Froth Flotation
  - c. Hydraulic wash
  - d. Magnetic separation.
  
5. Example of Frothing agents are
  - a. Soap
  - b. Pine oil
  - c. Kerosene
  - d. Any polymer
  
6. Acid used for Acid leaching process is
  - a. Hydrochloric acid
  - b. Nitric acid
  - c. Sulphuric acid

d. Oxalic acid.

7. Tin stone can be separated from the wolframite impurities by

- a. Alkali Leaching
- b. Froth Flotation
- c. Magnetic Separation
- d. Sublimation

8. Roasting usually applied for the conversion of

- a. Sulphide ores into their oxides
- b. Sulphide ores into their sulphates
- c. Chloride ores into individual metals
- d. None of the above

9. Roasting also removes impurities such as arsenic, sulphur, phosphorous into volatile oxides

- a. False
- b. True

10. In Calcination process the ore is strongly heated in the absence of

- a. Water
- b. Nitrogen
- c. Oxygen
- d. Chlorine

11. Other name of Chlorargyrite is

- a. Tin Stone
- b. Ruby Silver
- c. Horn Silver
- d. Argentite

12. Gravity Separation is used to extract

- a. Gold
- b. Silver
- c. Platinum
- d. Nickel

13. All ores are minerals but all minerals are not ores.

- a. True
- b. False

14. Ammonia leaching is suitable for the ore containing

- a. Mixture of nickel, copper and cobalt
- b. Mixture of gold, nickel and cobalt
- c. Mixture of Iron, Tin and copper
- d. Mixture of Silver, Chromium

15. Name the process by which gold is reduced to zero oxidation state

- a. Alkali leaching
- b. Cementation
- c. Calcinations
- d. Froth Flotation

16. Which one of the following metal is more reactive?

- a. Na
- b. K
- c. Al
- d. Zn

17. Smelting refers to -----

- a. converting an ore to its purest form
- b. converting a solid substance into a liquid
- c. Increasing the grade or purity of a metal.
- d. Heating the ore in the absence of air

18. Reduction of the oxide with carbon at high temperature is known as -----

- a. Roasting
- b. Calcination
- c. Smelting
- d. Oxidation

19. ----- is the least electropositive element in the periodic table.

- a. F
- b. Cl
- c. Br
- d. I

20. ----- reactions are exothermic chemical reactions using aluminium as the reducing agent at high temperature.

- a. Auto-reduction

- b. Smelting
- c. Calcination
- d. Aluminothermic

21. The sulphide of mercury, cinnabar, is actually -----

- a. Mercury(II) sulphide
- b. Mercury(I) sulphide
- c. Mercury(III) sulphide
- d. Mercury(0)

22. Removal of impurities present in the ore is called ----- process.

- a. Separation
- b. Extraction
- c. Refining
- d. Electromagnetic separation

23. Metals having low boiling point (like Zn, Cd, Hg) are refined by -----

- a. Liquation
- b. Distillation
- c. Zone refining
- d. Electrolytic refining

24. Which of the following methods is used in purification of mercury?

- a. Liquation
- b. Distillation
- c. Electrolytic refining
- d. Chemical reduction

25. In electro-refining of copper some gold is produced as -----

- a. cathode mud
- b. cathode deposit
- c. anode mud
- d. anode deposit

26. The method of zone refining of metals is based upon the principle of ----

- a. greater mobility of pure metal than impurity
- b. higher melting point of impurity than that of pure metal
- c. greater noble character of solid metal than that of the impurity
- d. greater solubility of the impurity in molten state than in solid

27. The Mond process, sometimes known as the -----

- a. Oxidation process
- b. Carbonyl process
- c. Refining process
- d. Extraction process

28. The metals extracted and refined in Mond's process is -----

- a. Carbon
- b. Hg
- c. Nickel
- d. Fe

29. Which method of purification is represented by the following equation?

- a. Cupellation
- b. Poling
- c. Van Arkel
- d. Zone refining

20. Which of the following is not correctly matched?

- a. Electrolytic refining : Au
- b. Mond's process : Pt
- c. Zone Refining: Fractional crystallization
- d. Van Arkel : Zr

31. Borax is salt

- a. Sodium salt of tetra boric acid
- b. Potassium salt of tetra boric acid
- c. Sodium salt of tetra acetic acid
- d. Potassium of tetra acetic acid

32. Number of B-O-B bond in borax is

- a. 4
- b. 5
- c. 3
- d. 0

33. Borax is used as a cleaning agent because on dissolving in water, it gives

- a. Alkaline solution
- b. Acidic solution

- c. Bleaching solution
- d. Amphoteric solution

34. Boric acid is polymeric due to

- a. Its acidic nature
- b. The presence of hydrogen bonds
- c. Its monobasic nature
- d. Its geometry

35. Which of the following statements about boric acid is false?

- a. It acts as monobasic acid
- b. It is formed by the hydrolysis of boron halides
- c. It has planar structure
- d. It acts as a tribasic acid

36. Alum contains

- a. One univalent and one trivalent metal ion
- b. Both univalent metal ions
- c. One divalent and one univalent metal ion
- d. Both trivalent metal ions

37. Potash alum is used in dyeing industry

- a. To help the dyes bind to the cloth as aluminium complexes
- b. To produce fire proof fabrics
- c. To dissolve the dye
- d. To make the fabric lustrous

38. Thermodynamically the most stable form of carbon is

- a. Diamond
- b. Graphite
- c. Charcoal
- d. Coal

39. In graphite, electrons are

- a. Localized on every third carbon
- b. Present in antibonding orbitals
- c. Localized on each carbon atom
- d. Spread out between the structure

40. Which of the following allotropic forms of carbon is isomorphous with crystalline silicon?

- a. Graphite
- b. Coal
- c. Coke
- d. Diamond

41. Davy and Faraday proved that
- Diamond is a form of carbon
  - The bond lengths of carbon containing compounds are always equal
  - The strength of graphite is minimum compared to platinum
  - Bond length of graphite is equal to bond length of other carbon containing compounds
42. Graphite is a good conductor of electricity. Its electrical conductivity is due to the fact that
- It is an allotrope of carbon
  - It has C-atoms arranged in large plates of rings of strongly bound C-atoms
  - In it C-atoms are  $sp^2$  hybridised
  - It is a non-crystalline substance
43. Which allotrope of carbon leads to the formation of bucky ball?
- Graphite
  - Diamond
  - Fullerene
  - Nano tube
44. Silicon, when fused with NaOH liberates
- Oxygen
  - Carbon monoxide
  - Carbon dioxide
  - Hydrogen
45. The water repellency of silicones arises because
- Of their stable silica-like skeleton
  - A silicone chain is surrounded by organic side groups
  - Of high strength of the Si-C bond
  - Of all these three factors
46. The electronic configuration of  $ns^2 np^3$  corresponds to
- Icosagens
  - Tetragens
  - Pnictogens
  - Chalcogens
47. Choose the metalloid in the series
- Gallium
  - Thalium
  - Tellurium
  - Polonium
48. Which one of the following statements is false?
- All the elements of group 16 and 17 are non metals
  - In group 14 elements, carbon is a nonmetal while silicon and germanium are metalloids
  - In group 15, nitrogen and phosphorus are non metals

d. Elements of group 13 have metallic character except the first element boron

49. Anomalous behavior of nitrogen is due to:

- a. Small size and high electronegativity
- b. Non-availability of d-orbital in valency shell
- c. Ease of multiple bond formation
- d. All are correct

50. Boron shows single oxidation state due to the absence of

- a. Inert pair effect
- b. Screening effect
- c. Isotope effect
- d. None

### Answer Key

|    |          |    |          |    |          |    |          |    |          |
|----|----------|----|----------|----|----------|----|----------|----|----------|
| 1  | <b>a</b> | 11 | <b>c</b> | 21 | <b>a</b> | 31 | <b>a</b> | 41 | <b>d</b> |
| 2  | <b>c</b> | 12 | <b>a</b> | 22 | <b>c</b> | 32 | <b>b</b> | 42 | <b>c</b> |
| 3  | <b>d</b> | 13 | <b>a</b> | 23 | <b>b</b> | 33 | <b>a</b> | 43 | <b>c</b> |
| 4  | <b>b</b> | 14 | <b>a</b> | 24 | <b>a</b> | 34 | <b>b</b> | 44 | <b>d</b> |
| 5  | <b>b</b> | 15 | <b>b</b> | 25 | <b>c</b> | 35 | <b>d</b> | 45 | <b>b</b> |
| 6  | <b>c</b> | 16 | <b>b</b> | 26 | <b>d</b> | 36 | <b>a</b> | 46 | <b>c</b> |
| 7  | <b>c</b> | 17 | <b>a</b> | 27 | <b>b</b> | 37 | <b>a</b> | 47 | <b>c</b> |
| 8  | <b>a</b> | 18 | <b>c</b> | 28 | <b>c</b> | 38 | <b>b</b> | 48 | <b>a</b> |
| 9  | <b>b</b> | 19 | <b>a</b> | 29 | <b>c</b> | 39 | <b>d</b> | 49 | <b>d</b> |
| 10 | <b>c</b> | 20 | <b>d</b> | 30 | <b>b</b> | 40 | <b>d</b> | 50 | <b>a</b> |