

CHEMICAL INDUSTRY

MULTIPLE CHOICE QUESTIONS

- Science of extracting metals from ores is called:
(a) Gangue (b) Metallurgy (c) Bassemrization (d) Calcinations
- Fertilizers urea is used to enhance the:
(a) enhance the variety of items (b) a & c
(c) productivity of crops (d) None of these
- These are used as fuel, solvent and lubricants:
(a) petrochemicals (b) Fertilizers (c) petroleum products (d) Ores
- Big industries in India at the time of patrician:
(a) 989 (b) 924 (c) 926 (d) 921
- Sodium carbonate is _____ producing in Jhelum:
(a) more (b) Less (c) enough (d) None of these
- ICI unit was established in:
(a) 1946 (b) 1944 (c) 1942 (d) 1947
- Sindh alkalies limited were established in:
(a) 1966 (b) 1956 (c) 1969 (d) 1968
- Pakistan is self-sufficient for the demand of:
(a) Sodium carbonate (b) Sodium bicarbonate
(c) Sodium chloride (d) Sodium hydroxide
- In Solvay's process, CaCl_2 solution is a material:
(a) Need (b) Waste (c) product (d) Reactant
- CO_2 and _____ are recovered & reused in Solvay's process:
(a) ammonia (b) Aluminum (c) sodium (d) NaCl
- Urea is a _____ fertilizer:
(a) Carbonic (b) Nitrogenous (c) Both a & c (d) None of these
- Percentage of nitrogen in urea:
(a) 46.2 % (b) 48% (c) 41% (d) 46.6%
- Urea is a _____ compound:
(a) White-crystalline (b) Transparent (c) blue crystalline (d) none crystalline
- Urea is a highly soluble in:
(a) Carbon dioxide (b) Water (c) crude oil (d) petroleum
- Urea is used for manufacturing of:
(a) crude oil (b) slaked lime (c) important chemicals (d) None of these
- Urea is about _____ used as a fertilizer:
(a) 90% (b) 93% (c) 90.4% (d) 94%
- NH_3 and CO_2 are the raw materials of: +
(a) sodium chloride (b) Crude oil (c) fuel (d) Urea

18. **Ammonia is prepared by:**
 (a) Solvay's process (b) Electromagnetic separation
 (c) Haber's process (d) Electrolysis
19. **Volume of nitrogen in Haber's process obtain from:**
 (a) Water (b) air (c) Carbon dioxide (d) None of these
20. **Nitrogen react with hydrogen to form ammonia at:**
 (a) 250 atm (b) 235 atm (c) 300 atm (d) 200 atm
21. **Temperature required for the production of ammonia is:**
 (a) 400°C (b) 450 °C (c) 425 °C (d) 500 °C
22. **For the formation of ammonia carbonate CO₂ is passed through:**
 (a) Brine solution (b) Liquid carbon (c) liquid ammonia (d) both a & b
23. **Urea is used to make:**
 (a) Fire extinguisher (b) Explosives (c) Auto mobiles (d) None of these
24. **percentage of Nitrogen in air:**
 (a) 72% (b) 75% (c) 78% (d) 81%
25. **There are _____ manufacturing units in Pakistan:**
 (a) Six (b) Nine (c) Twelve (d) Seven
26. **The biggest Fertilizer manufacturer in Pakistan is:**
 (a) Engro chemicals (b) David Hercules chemicals
 (c) Bin Qasim (d) Fauji fertilizers
27. **Fauji fertilizers contains _____ % of market shares:**
 (a) 55 (b) 61 (c) 56 (d) 59
28. **Natural fertilizers contains natural Bio-degradable from:**
 (a) Nitrogen (b) Phosphorous (c) Live stock (d) Potassium
29. **Chemical fertilizers release _____ very fastly:**
 (a) Minerals (b) gasses (c) Nutrients (d) Both a&b
30. **Natural fertilizers improve the structure of:**
 (a) Soil (b) Ores (c) Minerals (d) Metals
31. **Natural fertilizers are decomposed by:**
 (a) Fungi (b) Algae (c) Bacteria (d) Ferns
32. **Natural fertilizers practically do not contain:**
 (a) Nitrogenic Chemical (b) Ionic Chemical
 (c) Non-ionic Chemical (d) Toxic chemical
33. **In fractional distillation crude oil is heated up to:**
 (a) 400°C (b) 500 °C (c) 450 °C (d) 425°C
34. **Crude oil is separated into _____ hydrocarbons:**
 (a) 7 (b) 6 (c) 8 (d) 5
35. **Boiling point of gasoline or petrol is**
 (a) 50 to 100 °C (b) 60 to 140 °C (c) 40 to 90 °C (d) 80 to 170 °C
36. **Fuel oil boils at:**
 (a) 350 to 400 °C (b) 60 to 140 °C (c) 40 to 90 °C (d) 80 to 170 °C
37. **Ammonical tower contains:**
 (a) steam (b) Quick lime (c) Slaked lime (d) Brine
38. **Sodium hydrogen carbonate decomposes to liberate _____ gas:**
 (a) H₂ (b) SO₂ (c) CO₂ (d) N₂

39. Solvay's process is _____:
 (a) Expensive process (b) Hydrogen free (c) Pollution free (d) None of these
40. Solvay's process is a _____
 (a) Carbonating (b) Expensive process (c) Cheap process (d) None of these
41. "ICI" stands for _____:
 (a) International chemical industries (b) Imperial chemical industry
 (c) International Compound Industry (d) None of the above
42. For Electrolytic refining of copper _____ solution is used
 (a) copper oxide (b) Copper sulphate (c) copper dilute (d) Copper sulphide
43. Cheap raw material for manufacturing of sodium carbonate is
 (a) sulphur (b) Carbon (c) aluminum (d) limestone
44. Sodium bicarbonate heated to get
 (a) lime kiln (b) Calcium hydroxide (c) sodium carbonate (d) Ammonia
45. Quick lime reacts with water to form
 (a) lime water (b) Limestone (c) salt water (d) Slaked lime
46. Ferrous sulphide is oxidized to form
 (a) ferric oxide (b) ferric hydroxide (c) ferrous oxide (d) Ferric sulphate
47. It is used for bessemerizing of copper
 (a) magnetic separation (b) gravity separation
 (c) blast furnace (d) bessemer convertor
48. Blister copper contains
 (a) 98% pure copper (b) 99% pure copper (c) 98% pure copper (d) 92% pure copper
49. Cuprous sulphate oxidizes to form
 (a) cuprous sulphate (b) Cupric oxide (c) Cuprous oxides (d) Cupric sulphate
50. Cuprous sulphide and ferrous sulphide form
 (a) $\text{CuO} \cdot \text{FeS}$ (b) $\text{CuSO}_4 \cdot \text{FeS}$ (c) CuFeS_2 (d) CuFeS
51. Molten mixture of $\text{Cu}_2\text{S} \cdot \text{FeS}$ is called
 (a) ore (b) matte (c) soil (d) petroleum
52. First process involved in metallurgy is
 (a) extraction of minerals (b) smelting
 (c) froth floatation (d) concentration of ore
53. Process based on wetting characteristic of ore is called
 (a) Electrolytic separation (b) smelting
 (c) froth floatation (d) Gravity separation
54. Separation of magnetic ore from non magnetic is called
 (a) gravity separation (b) electromagnetic
 (c) concentrate (d) matte
55. Brown hair contains:
 (a) titanium (b) molybdenum
 (c) iron or copper compound (d) alkali metal
56. Blonde hair contains:
 (a) Titanium (b) Molybdenum
 (c) iron or copper compound (d) Alkali metal
57. Red hair contains:
 (a) Titanium (b) Molybdenum
 (c) iron or copper compound (d) Alkali metal
58. Process of extraction of metal in pure state is:
 (a) Gangue (b) Gravity separation
 (c) Metallurgy (d) Electromagnetic Separation

59. **Process of removal of Gangue from ore is called:**
 (a) Concentrate (b) Metallurgy (c) Concentration (d) ores
60. **How many industries came in share of Pakistan:**
 (a) 36 (b) 33 (c) 34 (d) 30
61. **Minerals are those solid natural metal which contains:**
 (a) Compound of Non-metal (b) Compound of metal
 (c) Both a & b (d) None of thaes
62. **Example of Ores is:**
 (a) NaHCO_3 (b) Cu_2S (c) NaCl (d) CaCO_3
63. **Cause of color of hair is presence of**
 (a) Iron compound (b) titanium (c) transition element (d) molybdenum
64. **Impurities associated with metal minerals are:**
 (a) Gangue (b) metallurgy (c) ores (d) minerals
65. **Boiling range of fuel oil is :**
 (a) $250-350^\circ\text{C}$ (b) $350-400^\circ\text{C}$ (c) $400-500^\circ\text{C}$ (d) $200-250^\circ\text{C}$
66. **Kerosine oil is used as:**
 (a) laboratory solvent (b) To form NaCl (c) jet fuel (d) In ships
67. **Composition of petroleum ether is :**
 (a) C to C_{10} (b) C_5 to C_7 (c) C_{13} to C_{15} (d) C to C_4
68. **They work in metallurgical industry:**
 (a) Inorganic chemists (b) organic chemists
 (c) Both a and b (d) None of these
69. **NaHCO_3 an heating produces :**
 (a) NaCO_2 (b) Na_2CO_3 (c) Na_2CO_2 (d) NaCO_3

ANSWER KEY

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|----|---|----|---|----|---|----|---|----|---|----|---|
| 1 | b | 14 | b | 27 | d | 40 | c | 53 | c | 66 | c |
| 2 | c | 15 | c | 28 | c | 41 | a | 54 | a | 67 | d |
| 3 | c | 16 | a | 29 | c | 42 | b | 55 | c | 68 | a |
| 4 | d | 17 | d | 30 | a | 43 | d | 56 | a | 69 | b |
| 5 | c | 18 | c | 31 | c | 44 | c | 57 | b | | |
| 6 | b | 19 | b | 32 | d | 45 | d | 58 | c | | |
| 7 | a | 20 | d | 33 | a | 46 | c | 59 | c | | |
| 8 | a | 21 | b | 34 | b | 47 | d | 60 | c | | |
| 9 | b | 22 | c | 35 | d | 48 | c | 61 | b | | |
| 10 | a | 23 | b | 36 | a | 49 | c | 62 | c | | |
| 11 | b | 24 | c | 37 | d | 50 | c | 63 | c | | |
| 12 | d | 25 | a | 38 | c | 51 | b | 64 | a | | |
| 13 | a | 26 | d | 39 | c | 52 | d | 65 | b | | |

SHORT QUESTION

METALLURGY OF COPPER

Q.1 Define concentration process used in metallurgy of copper.

Ans. **Concentration of Ore:** Definition: "The process of removal of gangue from the ore is technically known as concentration and the purified ore is called the concentrate."

Methods

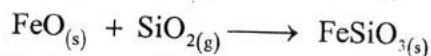
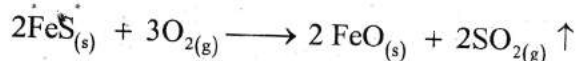
Concentration of crushed ore is carried by following methods:

- (a) Gravity separation
- (b) Electromagnetic separations
- (c) Froth flotation process

Q.2 Why a small amount of coke is required in the smelting process?

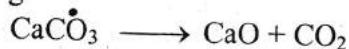
Ans. A small amount of coke is required in the smelting process because during the combustion a lot of heat is released.

Reaction



Q.3 Why lime is added in the smelting process?

Ans. Lime (CaCO_3) is added to remove excess of SiO_2 . Lime decomposes to form CaO , which reacts with sand to form slag.



These silicates being lighter rise to the top and form an upper layer, which is removed from the upper hole.

Q.4 How slag and matte are removed from the blast furnace?

Ans. **Slag:** Slag (CaSiO_3) being lighter rise to the top and form an upper layer, which is removed from the upper hole.

Matte: Matte is a mixture of cuprous sulphide along with some unreacted ferrous sulphide ($\text{Cu}_2\text{S}, \text{FeS}$) forms a lower layer. It is withdrawn from the lower hole.

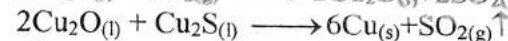
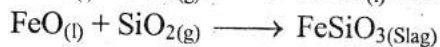
Q.5 What is difference between slag and matte?

Ans. Slag are the impurities separated from the ore.

Matte is the pure metal obtained from the ore by the process of metallurgy.

Q.6 Mention the chemical reaction for the formation of metallic copper in the bessemerization process.

Ans. The chemical reactions for the formation of metallic copper in the bessemerization process are given as follows:



Q.7 What is blister copper?

Ans. **Blister Copper:** The molten metal is shifted from the converter to sand moulds and is allowed to cool. The dissolved gases escape out forming blisters on the surface of the solid copper. Therefore, it is called blister copper. It is about 98% pure copper. It is further refined by electrolysis

