**SENIOR 6 QUESTIONS**

**PART I**

**MULTIPLE CHOICE QUESTIONS (Choose the correct answer out of the 4 alternatives)**

1. Which statement about metals is **NOT** correct?

A) Metals are malleable because metal ions slide over one another.

B) Metals conduct electricity because electrons can move in the lattice.

C) Metals consist of a giant lattice of metal ions.

D) Metals have high melting points because of the strong attraction between the metal ions.

**Answer: D**

2. Which statement about electrolysis is correct?

A) Electrons move through the electrolyte from the cathode to the anode.

B) Electrons move towards the cathode in the external circuit.

C) Negative ions move towards the anode in the external circuit.

D) Positive ions move through the electrolyte towards the anode during electrolysis.

**Answer: B**

3. Why is hydrogen gas produced at the cathode but not sodium during electrolysis of sodium chloride solution?

A) Hydrogen is less reactive than sodium

B) Hydrogen ions move faster than sodium ions

C) Hydrogen is a non- metal

D) Hydrogen is insoluble in aqueous solutions

**Answer: A**

4. How does a catalyst speed up the rate of reaction?

1. The catalyst gives the reactants extra energy
2. The catalyst increases the pressure in the reactor
3. The catalyst lowers the activation energy
4. The catalyst favours the forward reaction

**Answer: C**

5. Why is polychloroethene used to make water pipes?

A) The polymer is not biodegradable

B) The polymer decomposes when heated

C) The polymer does not conduct electricity

D) The polymer is produced by condensation polymerization.

**Answer: A**

6. Which one of the following metals **will not** displace lead from its salt in solution?

(Electrode potential: Pb = -0.12 V, Al = -1.66 V, Ag = **+**0.79 V, Ca= -2.87 V, Zn= -0.76 V)

A) Aluminium

B) Calcium

C) Silver

D) Zinc

**Answer: C**

7. Which fraction of petroleum is **NOT** matched to its use?

|  |  |  |
| --- | --- | --- |
|  | **Fraction** | **Use** |
| **A** | Bitumen | Making roads |
| **B** | Gasoline | Fuel for cars |
| **C** | Kerosene | Fuel for ships |
| **D** | Naphtha | Chemical industry |

**Answer: C**

8. Which statement is **NOT** correct?

A) Converting limestone into lime is a thermal decomposition.

B) In the extraction of iron, calcium carbonate is converted into calcium oxide.

C) Flue gas desulfurization is a neutralization process.

D) Slaked lime is added to soil as a fertilizer.

**Answer: B**

9. Which row below gives the optimum conditions for the production of NH3 in the Haber process?

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Temperature(0 C)** | **Pressure(Atm)** | **Catalyst** |
| **A** | 200 | 2 | V2O5 |
| **B** | 200 | 450 | Fe |
| **C** | 450 | 200 | Fe |
| **D** | 500 | 250 | V2O5 |

**Answer: C**

10. Oxides of nitrogen are found in polluted air.

Which statement about oxides of nitrogen is correct?

A) Oxides of nitrogen are formed by the reaction of nitrogen with oxygen during the fractional distillation of air.

B) Oxides of nitrogen are formed in a car engine by the reaction of petrol with nitrogen from the air.

C) Oxides of nitrogen are removed from exhaust gases by reaction with carbon dioxide in a catalytic converter.

D) Oxides of nitrogen are removed from exhaust gases by reduction in a catalytic converter.

**Answer: D**

11. Stainless steel is an alloy of iron and other metals. It is strong and does not rust but it costs much more than normal steel.

What is **NOT** made from stainless steel?

A) Curtley.

B) Pipes in a chemical factory.

C) Railway lines.

D) Saucepans.

**Answer: B**

12. Zinc metal is extracted from its ore Zinc blende in a similar method to that used to extract iron from hematite.

In which way is zinc extraction different from iron extraction?

A) Carbon and carbon monoxide are the main reducing agents.

B) Hot air at the base of the furnace reacts with coke to keep the furnace hot.

C) The metal oxide is added into the top of the furnace.

D) The metal is removed as a vapour at the top of the furnace.

**Answer: D**

13. Element D:

i)Forms an alloy

ii)Has a basic oxide

iii)Is below hydrogen in the reactivity series.

Element D is:

A) Carbon

B) Copper

C) Sulphur

D) Zinc.

**Answer: B**

14. Which statement about sulphuric acid is correct?

A) It reacts with ammonia to produce a fertilizer. process.

B) It is made in the atmosphere by the action of lightning.

C) It is made by the Haber

D) It reacts with copper metal to produce hydrogen.

**Answer: A**

**PART II**

*The following questions consist of an* ***ASSERTION*** *(statement) in the beginning and a* ***REASON*** *towards the end of the paragraph,*

*Write the most correct answer (****A, B, C or D****) out of the 4 alternatives given from question:*

A) If **both assertion and reason are true** statements and the reason **is** a correct explanation of the assertion.

B) If **both assertion and reason are true** statements but the reason **is not** a correct explanation of the assertion.

C) If the **assertion is** **true** but the **reason is an** **incorrect** statement

D) If the **assertion is incorrect** but the **reason is a true** statement

15. During the electrolysis of brine (NaCl solution) using carbon electrodes, chlorine is liberated at the anode ***BECAUSE*** a chloride ion is a more reducing agent than a hydroxide ion. **Answer: C**

16. Ammonium chloride and sodium chloride are separated by sublimation ***BECAUSE*** sodium chloride has a lower boiling point than ammonium chloride. **Answer: C**

17. Rubber is made harder with improved physical properties by mixing it with sulphur ***BECAUSE*** rubber forms disulphide bridges between carbon atoms. **Answer: A**

18. Carbon monoxide diffuses more rapidly than carbon dioxide ***BECAUSE*** the molecular mass of carbon monoxide is less than that of carbon dioxide. **Answer: A**

19. In the contact process, sulphur trioxide is dissolved in concentrated sulphuric acid and not in water ***BECAUSE*** sulphur trioxide is insoluble in water. **Answer: C**

20. When a solution of copper II sulphate is electrolysed using copper electrodes, the mass of the anode decreases ***BECAUSE*** the anode itself is oxidized during the process of electrolysis. **Answer: A**

21. Hydrogenation of 1 mole of benzene to cyclohexane releases less energy than hydrogenation of 3 moles of cyclohexene ***BECAUSE*** there is no delocalization of electrons in benzene molecules. **Answer: C**

22. Petroleum distillation is done due to different boiling points of its components ***BECAUSE*** HCl acid is used to remove FeS impurities from petroleum products. **Answer: B**