

Topic :- THE D-AND F-BLOCK ELEMENTS

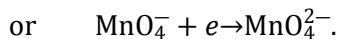
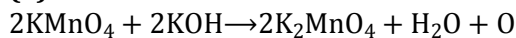
- 1 (a)
Silver nitrate is commercially known as lunar caustic.
- 2 (b)
The complex formed is $\text{Ag}(\text{NH}_3)_2\text{Cl}$ which ionizes in $\text{Ag}(\text{NH}_3)_2^+$ and Cl^- .
- 3 (b)
Fe is ferromagnetic, *i.e.*, retains magnetic properties if field is removed
- 4 (d)
Zinc sulphate ($\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$) is called white vitriol. It when heated with barium sulphide, forms a white pigment lithopone
- 5 (c)
This is definition of tempering of steel. The product obtained is neither so hard nor so brittle. It is softer than steel.
- 6 (b)
"925 fine silver" means 925, parts of pure Ag in 1000 parts of an alloy. Therefore, in percentage it will be 92.5% Ag and 7.5% Cu
- 7 (c)
It is a property of ZnCl_2 .
- 8 (d)
AgBr, silver bromide is used in photography.
- 9 (d)
Brass is an alloy of Cu and Zn.
Bronze is an alloy of Cu and Sn.
German silver is an alloy of Cu, Zn and Ni.
Hence, Cu is the common metal in brass, bronze and German silver.
- 11 (c)
Among the given, manganese has the most stable electronic configuration, thus it is very hard to remove an electron from its outer shell. Hence, a large amount of energy is required. Therefore, manganese has the maximum first ionization potential
- 12 (c)
It is a fact.
- 13 (b)

Vitamin B₁₂ is C₆₃H₈₈CoN₁₄O₁₄P.

14 **(d)**

By white tin plating, iron can be protected by water

15 **(a)**



16 **(a)**

Zn acts as cathode and carbon as anode in dry cells.

17 **(a)**

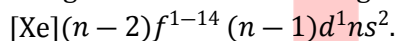
Annealing is the process of cooling a hot molten metal slowly. Railway wagon axles are made by heating iron rods embedded in charcoal powder (annealing) so that those might not break due to sudden change in temperature.

18 **(a)**

The methods chiefly used for the extraction of lead and tin from their ores are respectively self reduction and carbon reduction. (Because the process of heating the ore strongly in the presence of excess of air is called roasting. It is mainly used in case of sulphide ores and the process of extracting a metal by fusion of the oxide ore with carbon is known as smelting.)

19 **(d)**

The general electronic configuration for lanthanides is



∴ After the loss of both of the 6s-electrons and also the solitary d-electrons, the lanthanoids gain stable configurations.

∴ (+3) oxidation state is most common among lanthanides.

20 **(d)**

A) There is gradual decrease in the radii of the lanthanoids with increasing atomic number—a case of lanthanide contraction, thus true.

B) Ionization potential for the formation of Lu³⁺ is comparatively low, hence +3 state is favourable, thus true.

C) Due to lanthanide contraction — Zr and Hf; Nb and Ta, Mo and W have the same size and thus similar properties and thus separation is not easy, thus true.

D) Formation of +4 state requires very high energy, thus incorrect.

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	B	B	D	C	B	C	D	D	D
Q.	11	12	13	14	15	16	17	18	19	20
A.	C	C	B	D	A	A	A	A	D	D

PE