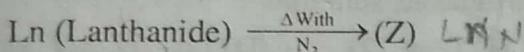
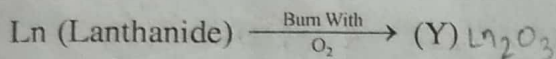
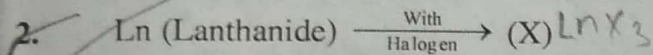


1. 5f-subshell is filled by electron(s) -
 (A) In actinides (B) After filling of 7s-subshell
 (C) Before filling of electron in 6d series (D) All are correct



X, Y & Z are respectively -

- (A) $\text{LnX}_3, \text{Ln}_2\text{O}_3, \text{Ln}_3\text{N}$ (B) $\text{LnX}_3, \text{Ln}_2\text{O}_3, \text{LnN}$
 (C) $\text{LnX}_2, \text{LnO}, \text{LnN}$ (D) $\text{LnX}_2, \text{Ln}_2\text{O}_3, \text{Ln}_3\text{N}$

3. Last element of lanthanide series is -

- (A) Lawrencium (B) Lutetium (C) Thulium (D) Hafnium

4. Which is consequence of lanthanide contraction -

- (A) Size of Zr \gg Hf (B) Size of Zr \ll Hf (C) Size of Zr \approx Hf (D) Size of Zr $>$ Zr^{4+}

5. Select ion which is larger than Ce^{3+}

- (A) Lu^{3+} (B) Eu^{3+} (C) Ce^{4+} (D) La^{3+}

6. Select reducing agent out of given options-

- (A) Ce^{4+} (B) Eu^{2+} (C) La^{3+} (D) Na^+

7. The correct order of ionic radii of $\text{Y}^{3+}, \text{La}^{3+}, \text{Eu}^{3+}$ and Lu^{3+} is :-

- (A) $\text{Y}^{3+} < \text{La}^{3+} < \text{Eu}^{3+} < \text{Lu}^{3+}$ (B) $\text{Y}^{3+} < \text{Lu}^{3+} < \text{Eu}^{3+} < \text{La}^{3+}$
 (C) $\text{Lu}^{3+} < \text{Eu}^{3+} < \text{La}^{3+} < \text{Y}^{3+}$ (D) $\text{La}^{3+} < \text{Eu}^{3+} < \text{Lu}^{3+} < \text{Y}^{3+}$

8. Which of the following statement is **NOT CORRECT** ?

- (A) $\text{La}(\text{OH})_3$, is less basic than $\text{Lu}(\text{OH})_3$
 (B) In lanthanide series, ionic radius of Ln^{3+} ions decreases
 (C) La is actually an element of transition series rather than lanthanide series
 (D) Atomic radii of Zr and Hf are same because of lanthanide contraction.

9. In the lanthanide series, the basicity of the lanthanide hydroxides

- (A) Increases
 (B) Decreases
 (C) First increase and then decrease
 (D) First decrease and then increases

Properties
SBG STUDY

1s², 2s², 2p⁶, 3s², 3p⁶, 4s², 4p⁶

10. The reason for the stability of Gd^{3+} ion is

- (A) 4f subshell — half filled
- (B) 4f subshell — completely filled
- (C) Possesses the general electronic configuration of noble gases
- (D) 4f subshell empty

11. Which of the following pairs has the same size ?

- (A) Zn^{2+} , Hf^{4+}
- (B) Fe^{2+} , Ni^{2+}
- (C) Zr^{4+} , Ti^{4+}
- (D) Zr^{4+} , Hf^{4+}

12. Which of the following ions will exhibit colour in aqueous solutions ?

- (A) Sc^{3+} (Z = 21)
- (B) La^{3+} (Z = 57)
- (C) Ti^{3+} (Z = 22)
- (D) Lu^{3+} (Z = 71)

13. Which of the following exhibits only +3 oxidation state ?

- (A) Ac
- (B) Pa
- (C) U
- (D) Th