

Date Planned : __ / __ / __	Daily Tutorial Sheet-5	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	Level-1	Exact Duration : _____

61. The outer electronic configuration of Gd (Atomic Number 64) is :
(A) $4f^3 5d^5 6s^2$ **(B)** $4f^8 5d^{10} 6s^2$ **(C)** $4f^4 5d^4 6s^2$ **(D)** $4f^7 5d^1 6s^2$
62. In context of the lanthanoids, which of the following statements is not correct ?
(A) There is a gradual decrease in the radii of the members with increasing atomic number in the series with certain exceptions.
(B) All the members exhibit + 3 oxidation state
(C) Because of similar properties the separation of lanthanoids is not easy
(D) Availability of 4f-electrons results in the formation of compounds in +4 state for all members of the series
63. Consider the following statements : 
(I) $\text{Lu}(\text{OH})_3$ is the last basic hydroxides of lanthanides
(II) Zr^{4+} and Hf^{4+} possess almost same ionic radii
(III) Ce^{4+} can act as an oxidizing agent
 Which of the above is/are true ?
(A) (I) and (III) **(B)** (II) and (III) **(C)** (II) only **(D)** (I) and (II)
64. Lanthanoids shows similarity in their ionisation energies with :
(A) Transition elements **(B)** Alkali metals
(C) Alkaline earth metals **(D)** Halogens
65. Most common oxidation states of Ce (cerium) are :
(A) +3, +4 **(B)** +2, +3 **(C)** +2, +4 **(D)** +3, +5
66. The most stable oxidation state of lanthanides is :
(A) +2 **(B)** +4 **(C)** 0 **(D)** +3
67. The correct order of ionic radii of Gd^{3+} , La^{3+} , Eu^{3+} and Lu^{3+} is :
(A) $\text{Gd}^{3+} < \text{La}^{3+} < \text{Eu}^{3+} < \text{Lu}^{3+}$ **(B)** $\text{Lu}^{3+} < \text{Eu}^{3+} < \text{La}^{3+} < \text{Gd}^{3+}$
(C) $\text{La}^{3+} < \text{Eu}^{3+} < \text{Lu}^{3+} < \text{Gd}^{3+}$ **(D)** $\text{Lu}^{3+} < \text{Eu}^{3+} < \text{Gd}^{3+} < \text{La}^{3+}$
68. Identify the correct statement among the following :
(a) d-block elements show irregular and erratic chemical properties among themselves
(b) La and Lu have partially filled d-orbitals and no other partially filled orbital
(c) The chemistry of various lanthanides is very similar
(d) 4f and 5f-orbitals are equally shielded
(A) a, b, c and d **(B)** a and b only
(C) b, c and d only **(D)** a, b and c only
69. Which one of the following exist in the oxidation state other than +3 ?
(A) B **(B)** Al **(C)** Ce **(D)** Ga

70. The lanthanide contraction is responsible for the fact that :
- (A) Density of transition metals decreases top to bottom in a group
 - (B) Sn and Pb are more stable in +2 state as compared to +4 state
 - (C) Zr and Nb have similar oxidation state
 - (D) Zr and Y have about the same radius
71. Larger number of oxidation states are exhibited by the actinides than those by the lanthanides, the main reason being.
- (A) 4f-orbital is more diffused than the 5f-orbital
 - (B) lesser energy difference between 5f and 6d than between 4f and 5d-orbital
 - (C) more energy difference between 5f and 6d than between 4f and 5d-orbital
 - (D) more reactive nature of the actinides than the lanthanides
72. Which of the following has got incompletely filled f-subshell ?
- (A) Gadolinium (B) Lutetium (C) Lawrencium (D) Tantalum
73. The point of dissimilarity between lanthanides and actinides is :
- (A) their outermost shells are partially filled
 - (B) they show oxidation state of +3 (common)
 - (C) they are called inner transition elements
 - (D) they are radioactive in nature
74. The actinides exhibit more number of oxidation states in general than the lanthanides. This is because :
- (A) the 5f-orbitals are more buried than the 4f-orbitals
 - (B) there is a similarity between 4f and 5f-orbitals in their angular part of the wave function
 - (C) the actinides are more reactive than the lanthanides
 - (D) the 5f-orbitals extend further from the nucleus than the 4f-orbitals
75. Which belongs to the actinides series ?
- (A) Ce (B) Cf (C) Ca (D) Cs