

Model Question Paper
f- Block Elements - Part II
12th Standard

Chemistry

Reg.No. :

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I. Answer all the questions.
II. Use Blue pen only.

Time : 01:15:00 Hrs

Total Marks : 75

5 x 1 = 5

Section-A

- 1) The oxidation state of uranium in UO_2Cl_2 is
(a) +5 (b) +2 (c) +4 (d) +6
- 2) The actinide contraction is due to
(a) Perfect shielding of 5f electron (b) Imperfect shielding of 4f electron (c) Imperfect shielding of 5f electron (d) Perfect shielding of 4f electron
- 3) The lanthanide element with no 4f electron and completely filled 4f sub shell are respectively
(a) Ce and Gd (b) La and Ce (c) La and Lu (d) Gd and Lu
- 4) The basic nature of hydroxides of lanthanides
(a) decrease with the increase in atomic number of lanthanides (b) increase with the increase in atomic number of lanthanides
(c) remain unchanged with the increase in atomic number of lanthanides (d) irregular increase with the increase in atomic number of lanthanides
- 5) Actinides show the higher oxidation state, due to
(a) higher binding energy (b) lower binding energy (c) higher shielding effect of 5f electrons (d) their larger size

Section-B

4 x 3 = 12

- 6) How the complexes are used in color tests?
- 7) How are f-block elements classified?
- 8) Write the general electronic configuration of lanthanides and actinides
- 9) What is lanthanide contraction?

Section-C

5 x 5 = 25

- 10) Account for the following. i) +3 oxidation state of lanthanides is the most stable. ii) A few 4f elements show +2 or +4 oxidation states in addition to the characteristic oxidation state of +3. iii) Lanthanides are grouped together.
- 11) Comparing $La(OH)_3$ and $Lu(OH)_3$, which is more basic and explain why?
- 12) Discuss the position of lanthanides in the periodic table.
- 13) Describe the extraction of Lanthanides from monozite sand.
- 14) Write the uses of lanthanides and Actinides

Section-D

3 x 10 = 30

- 15) a) What is difficult to separate lanthanide elements?
b) Write a note on oxidation state of lanthanides
- 16) a) Write any two consequences of lanthanides contraction
b) What are misch metals? Give their uses.
- 17) a) Write the uses of actinides
b) Write any three uses of lanthanides
