

92278

B.Sc. 4th Semester (New Scheme) Examination,

May-2016

BIO-TECHNOLOGY

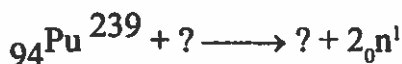
Paper-BT-407

Inorganic Chemistry

Time allowed : 3 hours [Maximum marks : 40]

Note : Attempt five questions in all, selecting one question from each section. Question No. 1 is compulsory.

1. (a) Why Lanthanides not form oxocations ?
(b) Which is more stable Europium (II) or Cerium (II)?
(c) Name the element which is formed by the β -decay of neptunium.
(d) Complete the following nuclear reaction :



- (e) What happens when ferric chloride solution reacts with $\text{K}_4[\text{Fe}(\text{CN})_6]$ solution.
(f) Give the chemistry of ring test of NO_3^- ion.
(g) BiCl_3 on dilution with water gives milkiness. Why?
(h) What do you mean by the term washing during precipitation? 1×8=8

Section-A

2. (a) What are the problem in separation of Lanthanides from one another? 3
(b) Which is thermally more stable $\text{La}(\text{NO}_3)_3$ or $\text{Tm}(\text{NO}_3)_3$? 2

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[P.T.O.]

- (c) What are the possible oxidation states of Lanthanides? 3
3. (a) Write down the type of oxides formed by Lanthanides. Why La_2O_3 is strongly basic while Lu_2O_3 is least basic? 4
- (b) Write note on the occurrence of Lanthanides. 4

Section-B

4. (a) Compare the Lanthanide Series with Actinide Series. (Similarities as well as differences) 5
- (b) Why actinides have greater tendency to form complexes than Lanthanides? 3
5. (a) Write down the chemistry of separation of Np, Pu and Am from U. 5
- (b) Write note on Actinide Contraction. 3

Section-C

6. (a) Discuss the reaction for silver nitrate test for thiosulphate. 3
- (b) How you will detect CO_3^{2-} in presence of SO_3^{2-} ? 5
7. (a) How you will detect NO_2^- and NO_3^- in presence of each other? 5
- (b) Give the reaction for ammonium molybdate test for phosphate. 3

Section-D

8. (a) Give the theory of separation of radicals of II A group. 4
- (b) Why does lead appear in group I as well as in group II of qualitative analysis? 4
9. (a) Give the chemistry of two tests of Mn^{2+} and Zn^{2+} . 4
- (b) What is the function of NH_4Cl in the group III of qualitative analysis? 4

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