Section B

6. Discuss chemistry of following tests :

(a) Nessler's reagent test for NH_4^+ **2**

(b) Silver nitrate test for thiosulphate **2**

(c) Sodium nitroprusside test for S^{2-} **2**

7. (a) Give reason why group IV radicals are precipitated by passing H_2S gas in the presence of NH_4OH ? **3**

(b) How is NO_3^- confirmed in the presence of Br^- ? **3**

8. (a) What is effect of pH, temperature and solvent upon the solubility of a precipitate ? **3**

(b) How will you detect presence of BO_3^{3-} ion in a mixture ? **3**

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B.Sc. EXAMINATION, 2026

(Fourth Semester)

(Re-appear Only)

CHEMISTRY

Paper-XI, CH-204

Inorganic Chemistry

Time : 3 *Hours*] [*Maximum Marks :* 32

Before answering the question-paper, candidates must ensure that they have been supplied with correct and complete question-paper. No complaint, in this regard will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *two* questions from each Section. Q. No. **1** is compulsory.

1. (a) Why is Eu (II) more stable than Ce (II) ? **2**

(b) What are transuranic elements ? Give synthesis reaction of curium (Z = 96) from plutonium (Z = 94). **2**

(c) Why does lead appears in group I as well as in group II of qualitative analysis ? **2**

(d) How will you detect the presence of Ni^{2+} ion in the solution ? **2**

Section A

2. (a) What happens when cerium (III) nitrate is treated with alkaline $KmnO_4$? **2**

(b) Discuss the following properties of lanthanides : **4**

(i) Tendency to form complexes

(ii) Double salt formation.

3. (a) What isactinoid contraction ? How do you account for it ? **3**

(b) The electronic configurations and positions of most of actinides are controversial, why ? Justify your answer by giving suitable examples. **3**

4. (a) Why is chemistry of all lanthanides identical ? **2**

(b) Cerium (IV) sulphate is used in redox reactions. Explain Why ? **2**

(c) Explain which is more basic and why Gd_2O_3 or YbO ? **2**

5. (a) Heavier atinides do not form oxocations. Explain. **2**

(b) Why are the ions of actinides coloured ? **2**

(c) La^{3+} is diamagnetic while Sm^{3+} is paramagnetic, why ? **2**

9. What happens when :

(a) Ammonium molybdate is added to sodium phosphate solution containing conc. HNO_3. **2**

(b) Sodium iodide is heated with MnO_2 and conc. H_2SO_4. **2**

(c) Sodium cobaltinitrite reacts with aqueous solution of KCl. **2**

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9. What happens when :

(a) Ammonium molybdate is added to sodium phosphate solution containing conc. HNO_3. **2**

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(c) Sodium cobaltinitrite reacts with aqueous solution of KCl. **2**

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