MAY 2016 **P/ID 40131/PCHL**

Time : Three hours Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define template effect.

2. What is called trans effect series?

3. What is called anation reaction? Give an example.

4. What is nuclear emulsion?

5. Explain the principle of G.M. Counter.

6. Distinguish between nuclear fission and fusion with example.

7. Name the actinides that occur in nature? What is the common features of these elements?

8. Tabulate the difference between lanthanides and actinides.

9. Define : Biochemical oxygen demand.

10. Give their importance of "Green-house effect".

PART B — (4 × 20 = 80 marks)

Answer ALL questions.

11. (a) (i) Discuss various theories of trans effect.

(ii) Describe the mechanism of inner sphere redox reaction.

Or

(b) (i) Discuss the various factors affecting the substitution reactions in square planar complexes.

(ii) Write a note on uses of trans effect? (10 +10)

12. (a) (i) With neat sketch explain the principle and functioning of bubble chamber. How it differ from cloud champer?

(ii) Explain the theory of nuclear fission. (10 +10)

Or

(b) (i) Write a note on Q-value and Coloumb barrier.

(ii) Give an account of "Steller energy".

(iii) With neat sketch and explain the principle and functioning of the following.

(1) Scitillation counters.

(2) Cherenkov counters.(5 + 5 + 5 + 5)

13. (a) (i) How are particles accelerated in a synchroton?

(ii) Explain the spectral characteristics of lanthanides. (10 + 10)

Or

(b) (i) Explain photo substitutions and photo redox reactions with examples.

(ii) With a neat sketch explain the working of a cyclotron.

(iii) How are lanthanides separated by ion exchange method? (6 + 6 + 8)

14. (a) (i) Explain the mechanism of smog forming reactions.

(ii) Write a note on "Ozone hole".

(iii) What are the sources of radio-active pollutions and its effects? (5 + 5 + 10)

Or

(b) (i) Describe biochemical effect of lead.

(ii) How is polorographic method useful in determining dissolved oxygen? (10 + 10)

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