

NOVEMBER/DECEMBER 2019

MCH22 — INORGANIC CHEMISTRY — II

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

1. (a) Describe the structures of spinels and antispinels with examples.

Or

- (b) Write notes on solid state electrolytes.

2. (a) Describe nuclear isomerism with example.

Or

- (b) What are photonuclear reactions? Explain various types of photonuclear reactions.

- (a) Explain the functioning of linear accelerator and cyclotron.

Or

- (b) What is the principle of neutron activation analysis? Give its applications.

4. (a) Describe the nuclear and non-nuclear applications of lanthanides and actinides.

Or

- (b) What are the nanoparticles? Explain any two methods for the preparation of nanomaterials.
5. (a) What is carbonic anhydrase? Explain its biological function.

Or

- (b) Describe the structural features of vitamin B₁₂. How does the corrin ring differ from the porphyrin ring?

SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. (a) Discuss the structures of cadmium iodide and nickel arsenide. (8)
- (b) Explain solid state lasers. (7)
7. Explain liquid drop model and nuclear shell model for nuclear structure. Bring out the significance of the liquid drop model.

8. (a) Write a note on hydrogen burning and carbon burning. (5)

- (b) Describe radiometric titrations and radio immuno assay their applications. (10)

9. (a) Explain spectral and magnetic properties of lanthanides and actinides. (8)

- (b) Write notes on characterization of nanomaterials. (7)

10. (a) Describe the structure of chlorophyll and salient features of the photosynthetic process. (10)

- (b) Describe the role of sodium and calcium in biological systems. (5)

