

APRIL/MAY 2019

MCH22 — INORGANIC CHEMISTRY — II

Time : Three hours

Maximum : 75 marks



SECTION A — (5 × 6 = 30 marks)

Answer ALL questions.

- (a) What do you mean by lattice defects in ionic crystals? Explain it with examples.

Or

- (b) Give the comparison between X-ray and neutron diffraction.

2. (a) Explain the working principle of "Scintillation counter".

Or

- (b) Write a note on nuclear cross section.

3. (a) How are stellar energies explained on the basis of nuclear fission?

Or

- (b) Write a short note on "linear accelerators".



4. (a) Explain the preparation of nano materials by sol-gel method.

Or

- (b) Discuss the nuclear and non nuclear applications of actinides.

5. (a) Discuss the structure and functions of Haemoglobin.

Or

- (b) Write a short note on iron-sulphur proteins.



SECTION B — (3 × 15 = 45 marks)

Answer any THREE questions.

6. (a) Explain in detail the electrical and magnetic properties of solids. (10)

- (b) Write a short note on "Solid state lasers". (5)

7. (a) Discuss in detail the Nuclear shell model and the liquid drop model for nuclear structure

(10)

- (b) Explain the different types of nuclear reactions. (5)

8. (a) Discuss the principle and applications of Neutron activation analysis. (10)

- (b) Write a short note on carbon burning process. (5)

9. (a) Discuss the applications of nanomaterials in the field of optics and electronics. (10)

- (b) Give a brief note on "spectral properties" of Lanthanides. (5)

- (a) Explain in detail in vitro and in-vivo nitrogen fixation. (10)

- (b) Discuss the structure and function of carboxy peptidase enzyme. (5)