

10. (a) (i) With an example, explain the non-stoichiometric compounds. (5)
(ii) How X-ray powder data is used in identifying inorganic solids? (5)

Or

- (b) Draw and explain the structure for the following :
(i) Pervoskite.
(ii) Zinc blende. (5 + 5)

S.No. 336

12PCH02/
12PAC02

(For the candidates admitted from 2012-2013 onwards)

M.Sc. DEGREE EXAMINATION, APRIL/MAY 2018.

First Semester

Chemistry

INORGANIC CHEMISTRY – I

(Common for Analytical Chemistry)

Time : Three hours

Maximum : 75 marks

SECTION A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Discuss the applications of HSAB principle.
Or
(b) Using Craig model, explain the structure of phosphazenes.
2. (a) Write a note on internal conversion of nuclei.
Or
(b) What are scintillation counters? Explain their process in counting of particles.

3. (a) Bring out the applications of radioisotopes.

Or

(b) What is neutron activation analysis? How it is used in nuclear chemistry?

4. (a) Explain the reactions in solid state.

Or

(b) What are spinels? Discuss the formation of spinels.

5. (a) What are point defect and surface defect? Explain.

Or

(b) Describe the structure of fluorite and antifluorite.

SECTION B — (5 × 10 = 50 marks)

Answer ALL questions.

6. (a) (i) Explain the term symbiosis. (5)

(ii) Give an account of structures of silicates. (5)

Or

(b) Write short notes on :

(i) Isopolyacids of vanadium.

(ii) Heteropolyacid of molybdenum. (5 + 5)

7. (a) How is the nuclear shell model explained for the stability of nuclei having magic numbers?

Or

(b) (i) Define the following terms and distinguish them :

(1) Photonuclear reactions.

(2) Thermo nuclear reactions. (5)

(ii) Write a note stellar energy. (5)

8. (a) Explain the safety precaution to be followed from radiation.

Or

(b) Describe the following :

(i) The hydrated electron.

(ii) Radiolysis of water. (5 + 5)

9. (a) Give an account on :

(i) Hysteresis.

(ii) Inorganic phosphors.

(iii) Vacancy and interstitial diffusion.

Or

(b) Bring out the concept of electrical properties of solids.