UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program : Seventh Semester – Fall 2021

Roll No. .....

Paper: Inorganic Chemistry (Sp. Theory-II) Course Code: CHEM-407 Time: 3 Hrs. Marks: 60

Q.1. Answer the following short questions: (15x2=30)

(i) What is meant self–ionization of solvent? Explain your answer with two examples.

(ii) What is dielectric constant? What is its effect on solubility?

(iii) Write equations to show what happens when each of the following dissolves in liquid HF:

(a) BrF_3 (b) EtOH

(iv) What are the benefits of metal in liquid NH_3 solution?

(v) Addition of potassium to H_2O results in a vigorous reaction; addition of potassium to liquid NH_3 gives a bright blue solution, which over a period of time liberates H_2, why?

(vi) How the natural radioactive series is differentiated from the artificial radioactive series?

(vii) Give the relation between activity and number of half-lives in radioactive disintegration.

(viii) Give examples of metal oxides that can be used as high temperature conductors.

(ix) What is the role of radioisotopes in medicines?

(x) Give at least four hazardous effects of oxides.

(xi) Give a brief note on magnetic properties of mixed metal oxide.

(xii) Explain briefly AB_2O_4 type spinels.

(xiii) What is meant by Inverse spinels?

(xiv) Differentiate between protic and aprotic solvents.

(xv) Differentiate between ferromagnetic substances and ferromagnetic substances.

Q.2. Answer the following questions. (5x6=30)

(a) How radioactivity is monitored by Geiger Muller counter and Wilson cloud Chamber?

(b) Write a note on types of artificial transmutation reactions induced by different projectile.

(c) What are perovskites? Draw their structures also.

(d) Explain complexometric reactions and redox reactions in liquid ammonia.

(e) Explain the role of Liq SO_2 as solvent in organic synthesis.