UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – Spring 2022

Roll No. .....

Paper: Physical Chemistry **Course Code: CHEM-313** **Time: 3 Hrs. Marks: 60**

THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Write short notes on following. **(15x2=30)**

(a) What are ionic reactions?

(b) Describe barometric formula?

(c) What is cage effect?

(d) How can you determine pre-exponential factor from Arrhenius equation?

(e) What is the effect of temperature on rate constant?

(f) What are effective collisions?

(g) Give postulates of Bimolecular theory?

(h) Define partition function? What is factorization of partition function?

(i) Describe Nernst Heat Theorm.

(j) Write down Nernst Approximation formula.

(k) What is the difference between classical and statistical thermodynamics?

(l) What is Clausius inequality?

(m) What do you understand by fast reactions?

(n) Derive root means square velocity from Maxwell's distribution law?

(o) What is pulse method?

Answer the following questions.

Q.2 (a) What is Eyring equation? How can you determine Eyring parameters using Eyring equation? (5)

(b) What is the effect of temperature and altitude on vertical distribution constant? (5)

Q.3 (a) Derive expression of energy interms of "Partition Function". (5)

(b) Verify third law of thermodynamics experimentally. (5)

Q.4(a) Elaborate five postulates of transition state theory? (5)

(b) Derive two Maxwell's relations? (5)