Government General Degree College, Dantan-II
B. Sc (H) 2nd Semester Internal Evaluation-2020

Subject: Chemistry **Paper: GE-2 (T+P)**
F.M: 20 (Theory) + 10 (Practical) **Time: 2 h**

Answer any **one question** from each Group.

Group A : Theory

1. (i) Write down Maxwell's distribution for the distribution of molecular speeds and discuss quantitatively its important features.
(ii) Deduce an expression for the most probable speed.
(iii) Derive the reduced equation of state for a van der Waals gas

2. (i) Distinguish between 'Order' and 'Molecularity' of reaction.
(ii) Derive integrated rate equation for a second order reaction when concentration of reactants are different.
(iii) The rate constant of a certain reaction is found to double when temperature is raised from 27˚C to 37˚C. What is the activation energy of the reaction?

3. (i) Define surface tension and mention its S. I unit.
(ii) Explain the principle of determination of coefficient of viscosity using Ostwald viscometer.
(iii) Derive Bragg,s equation.
(iv) What is Miller indices?

4. (i) Draw Bond-Haber cycle for the formation of CaO.
(ii) Na_2CO_3 is thermally more stable than Li_2CO_3. – Explain.
(iii) What is inorganic benzene?
(iii) Draw M.O diagram of O_2 and hence calculate its bond order.

Part B : Practical

1. Explain the principle of Determination of the viscosity of a liquid using an Ostwald's viscometer

2. Write the procedure of determination of the surface tension of a liquid using a stalagmometer.

3. Explain any one method of separation of phosphate ion.

4. Explain how $NO_3{}^-$ and $NO_2{}^-$ is detected in a sample mixture.