

Government General Degree College, Dantan-II
B. Sc (General) 4th Semester Internal Evaluation-2020
Subject: Chemistry **Paper: DSC-1D (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) Write short note on Jahn-Teller distortion
(ii) Write basic postulates of Crystal Field Theory.
(iii) What is Spectrochemical series?
4. (i) Write basic postulates of Valence Bond Theory.
(ii) Write short note on oxidation state of Lanthanoids and actinoids.

Group 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 the principle involved in estimation of Mg^{2+} by complexometric titrations using EDTA.