

Haldia Government College

PG Semester 2 Examination 2020

Semester: **2** Stream: **M.Sc.**

Subject: **Physical Chemistry Practical**

Paper: **CEM -296**

Full Marks:**20**

Time:**1 hr.**

E-mail id for answer script submission: **hgchemistry2020@gmail.com**

Answer any one of the following questions.

- (a) Write down the theory and working principle for the determination of K_1 , K_2 , K_3 of H_3PO_4 pH-metrically.

(b) Why we use $CaCl_2$ to find out the third dissociation constant of H_3PO_4 ?

(c) Explain why pH of 0.1M solution of HCl is same as that of 0.05M H_2SO_4 ?

(d) Is pH of pure water affected by rise in temperature?—Explain
- (a) Discuss the theory and working principle to determine the order of the alkaline hydrolysis of crystal violet colorimetrically with respect to alkali.

(b) Study the same system showing the salt effect.

(c) What do you understand by primary and secondary kinetic salt effect?
- (a) Write down the theory and working principle to determine the individual concentration of HCl, KCl and NH_4Cl in a mixture conductometrically.

(b) Why alternating current (AC) is used in conductance measurement—Explain?

(c) Why titrant concentration should be 5 to 10 times stronger than that of titre in conductometric titration?

(d) What are the advantages of conductometric titration?
- Write the theory on the study of the kinetics of $K_2S_2O_8+KI$ reaction, spectrophotometrically and also write the objective of the experiment.
- Write the theory on the conductometric determination of CMC and describe the experimental procedure.
- Write the theory on the kinetics of inversion of cane-sugar by polarimetric method and describe the experimental procedure.