

## B.Sc Semester VI (Hons) Practical Examination' 2021

(Under CBCS system)  
Gurudas College Centre  
Subject: Physical Chemistry  
Paper – CC-6-14 Pr

Time: 1hr 30 min

F.M.- 30

1. Write the theory/ principle behind the given experiment.
2. Represent the experimental data (supplied) in tabular form according to the given experiment.
3. Calculate the result of the given experiment according to the supplied experimental data. [6+4+6]

Experiment:

### Determination of the rate constant of $K_2S_2O_8$ – KI reaction spectrophotometrically

Data:

a. Temperature: 25°C

b. Kinetic Data:

Set: 10 ml exact 0.1 (N) KI solution + 10 ml exact 0.1 (N)  $K_2S_2O_8$  solution

Time of half-discharge: 0:0 min

Time to time the % transmittance varied as follows:

Time (min)	1	2	3	4	5	6	7	8	9	10	11	12
% T	89	78	69	60	58	53	48	44	40	37	34	31

Use Microsoft excel for relevant calculation and plotting.

### LAB-QUIZ

*Each question carries 2 marks. Answer any seven.*

- Q.1 What is the normality of a 1M  $KMnO_4$  solution? Calculate.
- Q.2 Suggest an alternative method for studying and determining the second order rate constant for the reaction between  $K_2S_2O_8$  and KI apart from colorimetry.
- Q.3 Molar extinction coefficient depends on the wavelength of the light used -----true or false?
- Q.4 What is the light absorbing species in the colorimetric study of the Kinetics of the reaction between  $K_2S_2O_8$  and KI?
- Q.5 What is the function of a filter in a colorimeter?
- Q.6 Which concentration unit is temperature independent?
- Q.7 Is Beer's law applicable at higher concentrations?
- Q.8 Surface tension of a solution NaCl is higher than that of water---- -----true or false?
- Q.9 Why is it necessary to use a vertical stand for measuring surface tension Using a stalagmometer?
- Q.10 What is the dimension of surface tension?---Derive it.