B.Sc. 6th Semester (Honours) Practical Examination 2021

Subject: Chemistry

Course ID: 61422 **Course Code: UG/CHEM/602/C-14**

Course Title: Physical Chemistry-IV(C-14)(PR)

Full Marks: 15 **Time: 2 hour**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as possible.

1. Answer *any one* of the following questions: 15×1 = 15

   i) Write down the theoretical background for determination of surface tension of an unknown liquid by drop number method. Discuss the procedure for such determination by varying concentration (say 10%, 7.5% and 5% methanol solution). Present the tables involved for calculation. How will be the surface tension vs. concentration (%) graph? Does surface tension depends on temperature?

   4+5+3+2+1=15

   ii) Write down the theoretical background for determination of molar extinction coefficient and verification of Beer's law of a given sample. Discuss the procedure for determination of concentration of a unknown $KMnO_4$ dilute solution. Present a data table and draw a plausible curve. What will be the unit of absorbance and molar extinction coefficient?

   4+6+3+2=15