The Assam Royal Global University, Guwahati

Royal School of Applied and Pure Sciences

Programme: M.Sc Chemistry   Semester = 2nd

Semester End Examination, August 2021

Subject: Physical Chemistry-II

Subject Code: CHY014C201

Time: 3 Hours   **Maximum Marks: 70**

Note: Attempt all questions as per instructions given.
The figures in the right-hand margin indicate marks.

Section – B

Q.4. Answer *any two* questions: 7×2 = 14

a) Derive Langmuir's adsorption isotherm. The adsorption of a gas is observed by Langmuir isotherm. If 10% of surface of the adsorbent is covered, then calculate pressure of the gas. (Give, K= 0.9 Pa^{-1})   5+2

b) What is protective colloid? Define gold number. Discuss about the stability of colloids.   1+1+5

c) Discuss about Tyndall effect and Brownian movement of a colloidal solution.

Q.5. Answer *any two* questions: 7×2 = 14

a) Derive expressions for the weight average and the number average molecular weights of polymers. Equal number of molecules with M_1=100000 and M_2=10,000 are mixed. Calculate $\overline{M}_N$ & $\overline{M}_W$.   4+3

b) Write intrinsic viscosity molecular weight relationship for polymers. The intrinsic viscosity myosin is 217 cm^{3}g^{-1}. Calculate the approximate concentration of myosin in water which would have relative viscosity of 1.5.   2+5

c) Write down the different expressions for molecular weight averages of polymers. Draw a molecular weight distribution curve and locate the positions of different average molecular weights on the curve.   3+4

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