**Mass Transfer-1 Class Test**

**Time Duration: 30 minutes Date: 13th Feb 2023**

**Instructions:**

1.Assume atmospheric temperature and pressure, and required constants if not mentioned.

2. If constants are not provided then solve in terms of the missing constant.

Q.1.Ammonia (A) is being absorbed in water from a mixture with nitrogen (B). The partial pressure of the solute in the bulk gas is 40 mm Hg and that at the gas – liquid interface is negligibly small. Diffusion occurs through a stagnant film of thickness 1 mm. The total pressure is 1 atm and the temperature is 25 oC. Diffusivity of NH3 in N2 is 0.23 cm2/s. Calculate the absorption flux of NH3 as well as the mass transfer coefficients kG, ky and kc .

Q.2. A sphere of naphthalene having a radius of 2mm is suspended in a large volume of shell air at 318 K and 1 atm. The surface pressure of the naphthalene can be assumed to be at 318 K is 0.555 mm Hg. The D AB of naphthalene in air at 318 K is 6.92 \* 10 –6m 2/sec. Calculate the rate of evaporation of naphthalene from the surface.