Q1. Compare the settling velocity of 10 µm diameter water droplets to that of sand particles (density = 1.5 x 103 kg/m3). The correction term for a droplet of 10 µm diameter is 1.016, the viscosity of surrounding air is 1.9 x 10-5 kg/m s, the acceleration due to gravity is 9.8 m/s2, water density is 1000 kg/m3, and air density is 1.2 kg/m3.

Q2. Compare the settling velocity of 100 µm diameter rain droplets to that of carbon soot particles (density = 2.5 x 103 kg/m3). The correction term for a droplet of 100 µm diameter is 1.0016, the viscosity of surrounding air is 1.9 x 10-5 kg/m s, the acceleration due to gravity is 9.8 m/s2, water density is 1000 kg/m3, and air density is 1.2 kg/m3.

Q3. How long will it take for a collection of fine aerosol particles (N = 109 m-3; dP = 0.1µm) to drop to 5 x 108 m-3 through co-agulation processes. The diffusion

 coefficient of the aerosol particle (D) is equal to 6.75x10-10 m2s-1 and the correction term (C) is equal to 2.85.

Q4. How long will it take for a collection of fine aerosol particles (N = 1010 m-3; dP = 0.01µm) to drop to 5 x 108 m-3 through co-agulation processes. The diffusion coefficient of the aerosol particle (D) is equal to 5.24x10-8  m2s-1 and the correction term (C) is equal to 22.2.