Diffusion of component "A" through stagnant "B" in gas phase –
pseudo-steady-state assumption

Consider the identical system as described in Question 1A except remove the reservoir attached to the bottom of the cylinder. Assume that evaporation occurs so slowly with time that the concentration profile differs only insignificantly from steady-state at any one moment. That is, the system slowly progresses from steady-state to steady-state!

Find:

i)   An expression relating height of liquid level and time.
ii) How much time is required for the depth to change from 2.0 cm to 3.0 cm for acetone, ethanol and water?