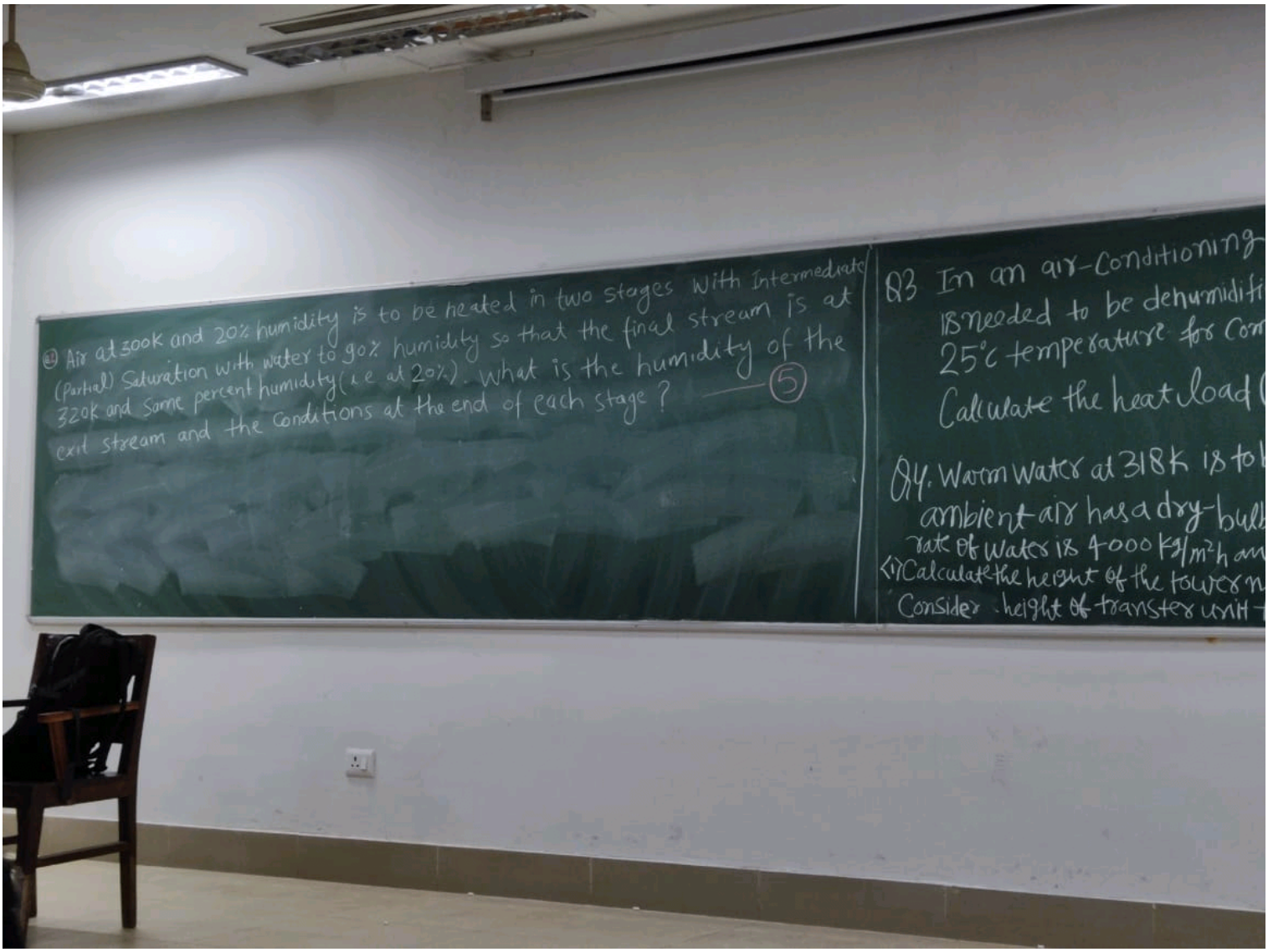
Q2 Air at 300K and 20% humidity is to be heated in two stages with Intermediate (Partial) Saturation with water to 90% humidity so that the final stream is at 320K and Same percent humidity (i.e at 20%). What is the humidity of the exit stream and the conditions at the end of each stage? ——— (5)
Q3 In an air-Conditioning
IS needed to be dehumidifi
25°C temperature for Com
Calculate the heat load
Q4. Warm water at 318K is to
ambient air has a dry-bulb
rate of water is 4000 kg/m²h an
(i) Calculate the height of the tower n
Consider height of transfer unit

is to be heated in two stages with intermediate
go% humidity so that the final stream is at
i.e. at 20%). What is the humidity of the
ons at the end of each stage? ——(5)

Q3. In an air-conditioning system air at 40°C and 80% humidity
is needed to be dehumidified to 40% humidity, maintaining at
25°C temperature for comfortable living in a home environment
Calculate the heat load (in KW) of the system for processing 1 Ton of dry air per hour? ——(5)

Q4. Warm water at 318K is to be cooled to 303K in an induced draft cooling tower. The
ambient air has a dry-bulb temperature of 308K and the desired approach is 8K. The mass flow
rate of water is 4000 kg/m²h and that of air is 3000 kg/m²h. The gas phase mass transfer coefficient is negligible (very
(i) Calculate the height of the tower needed to achieve the desired cooling
Consider height of transfer unit to be unity. ——(15)