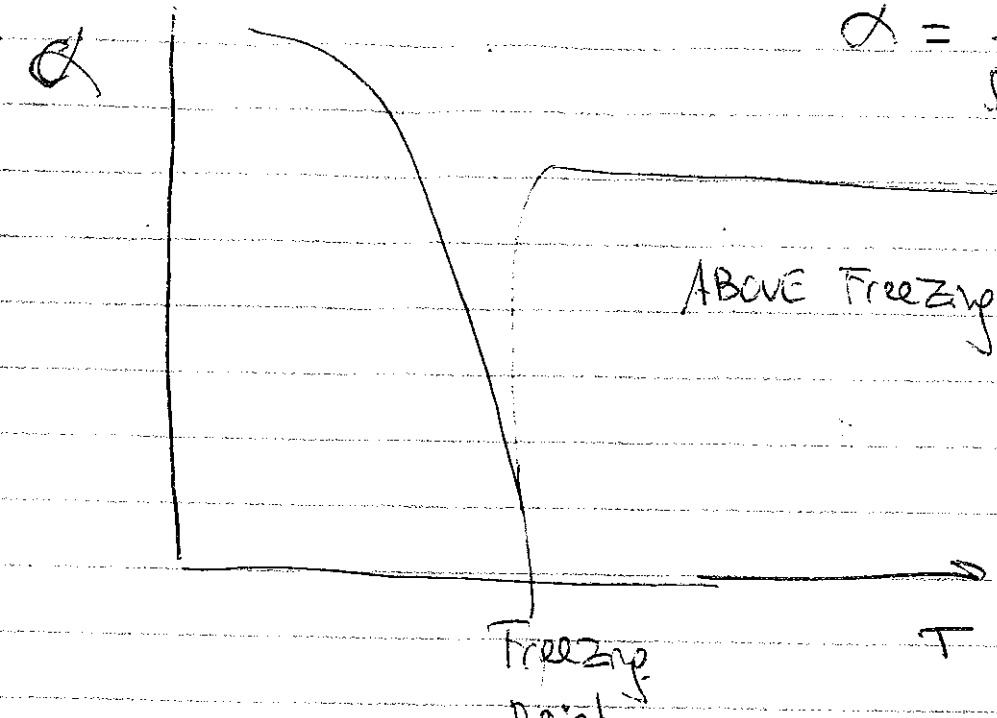
NOTES CLASS 9-21-2017

$$\alpha = \frac{K}{\rho C}$$

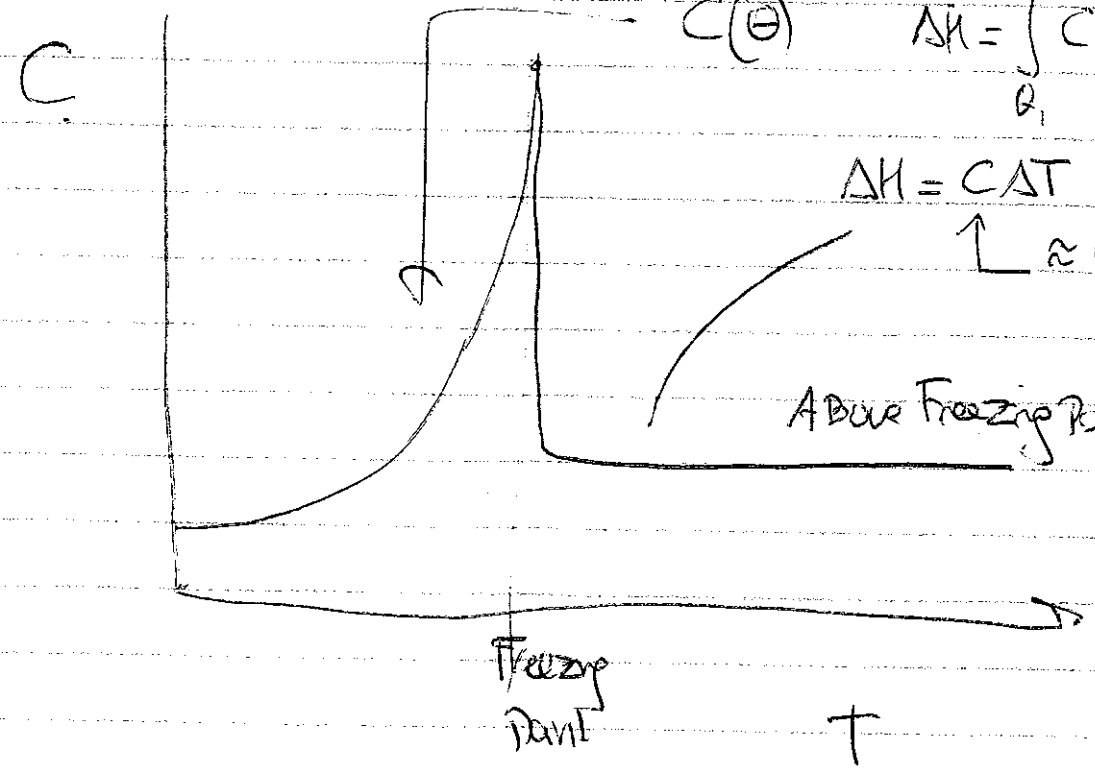


$C(\theta)$

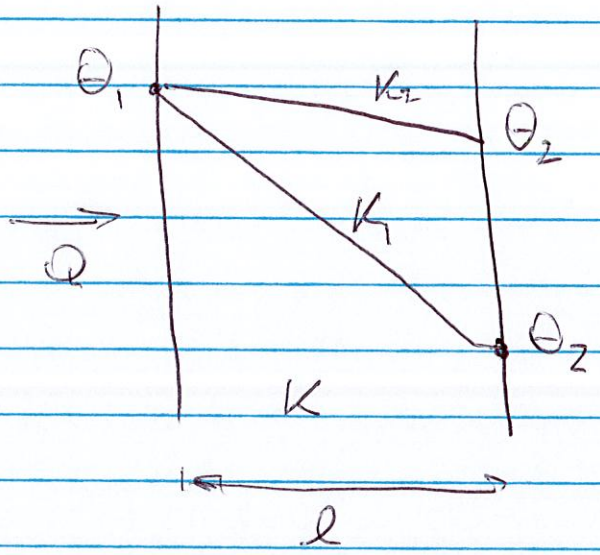
$$\Delta H = \int_{\theta_1}^{\theta_2} C(\theta)\, d\theta$$

$$\Delta H = C \Delta T$$

$\uparrow$ ≈ constant



Quiz 2 _ Question 2 (2)



$K_2 > K_1$

$$Q = \frac{\theta_1 - \theta_2}{\frac{K l}{A}}$$

$$\boxed{Q = KA \frac{\theta_1 - \theta_2}{l}}$$

Let's assume that ~~Q_{θ_2} is the same~~, A is the same and l is the same.

$$\boxed{Q \propto K[\theta_1 - \theta_2]}$$ if A & l are the same.

Since Q is the same

K large $\longrightarrow \theta_1 - \theta_2$ small

K small $\longrightarrow \theta_1 - \theta_2$ large.

LECTURE 4 – slide 11

MATERIAL ≡ WATER + POLYSACCHARIDE + PROTEIN + SALT

$$a_w = \frac{M_w}{m_w + m_{poly} + m_{prot} + m_{salt}}$$

M_w ← molar concentration of water

m_{poly} ← more starch.

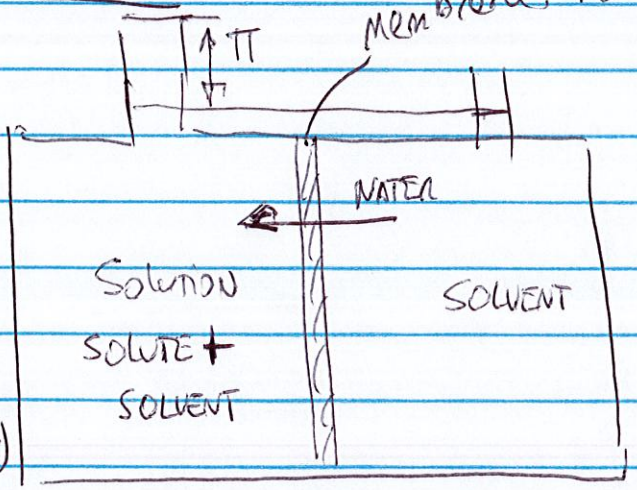
Initially.

→ 0.1 moles/lite and add 300 g starch. $\simeq \frac{300}{M_{starch}} = \frac{300}{1000000}$ Very small.

M_{starch} → 10,000,000 Daltons.

$$\text{DALTONS} \equiv \frac{g}{mol}$$

OSMOTIC PRESSURE



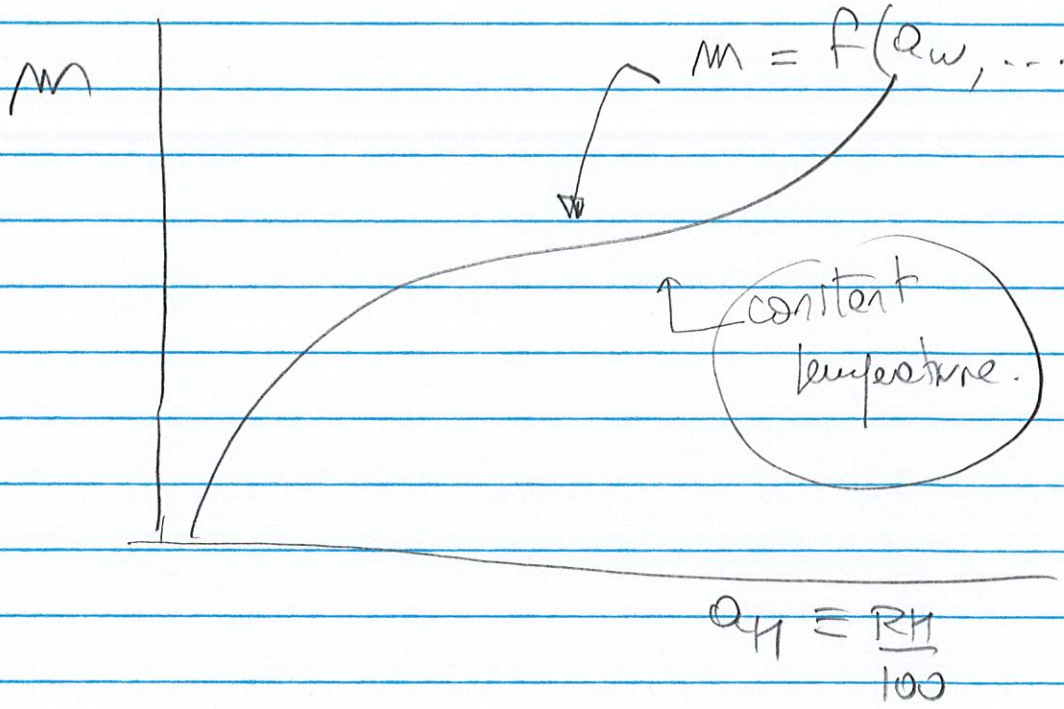
AT EQUILIBRIUM PRESSURE DIFFERENCE (Π) DUE TO WATER (SOLVENT) MOVING IS THE OSMOTIC PRESSURE

SOLVENT IS WATER

- SLIDE 19

m : amount of water the material has

a_w : availability of water $\left[\frac{RH}{100}\right]$



ABSORPTION VERSUS ADSORPTION

BET Model

$$m = f(a_w, C, m_0)$$

- f: function
- C, m_0: PARAMETERS OF THE MODEL

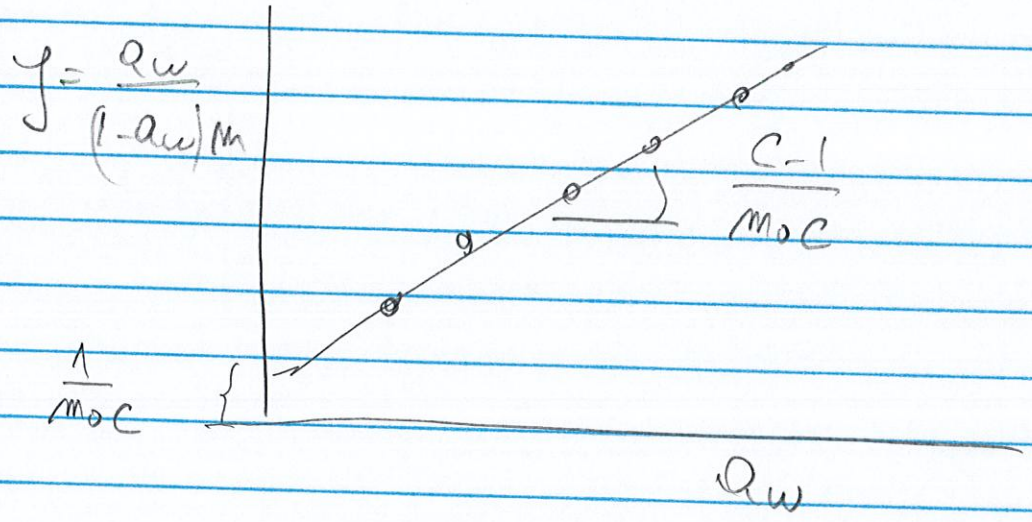
(5)

x TABLE WITH YOUR DATA

a_w	m	y
–	–	
–	–	
–	–	
–	–	
–	–	

→

x	y
a_w	$\frac{a_w}{(1-a_w)m}$
–	–
–	–
–	–
–	–
–	



Intercept $= \frac{1}{m_o C}$

Slope $= \frac{C-1}{m_o C}$

} Can we get m_o & C?

} yes

For data in Excel

Slope = 0.286

Intercept = 0.0576

} get m_o & C