(a) $\frac{\uparrow x_{ice}}{\rightarrow x_w} = \left(1 - \frac{Q_f}{\Theta}\right)$

Solids part.

100 g. SNF = 13.5 $x_{w\,new}$

$\frac{12}{13.5 + x_{new}} = 0.60 \rightarrow x_{new} = 0.09$ g

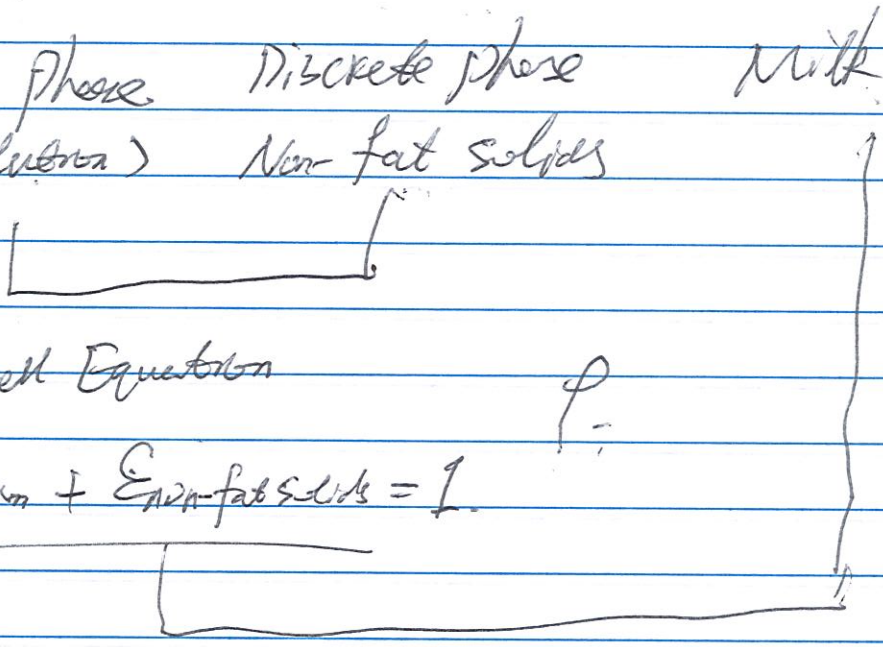
$x_{ice} = x_w - x_{new}$.

$x_w = x_{w'} = 0.865$.

(b) $\Delta h_{20 \rightarrow 0} = \Delta h_{20 \rightarrow -1.3} + \Delta h_{-1.3 \rightarrow 0}$

0. above Freezing — Below Freezing

2 levels aqueous phase.



level 1 Maxwell Equation

$$\varepsilon_{\text{sugar solution}} + \varepsilon_{\text{non-fat solids}} = 1.$$

level 2

$$\varepsilon_{\text{aqueous part}} + \varepsilon_{\text{milk fat}} = 1.$$

Mixture