3. The enthalpy change on freezing of 1 mol of water at 5°C to ice at −5°C is (Given $\Delta_{fus}H$ = 6 kJ $mol^{-1}$ at 0°C,
   $C_p(H_2O, \ell$ = 75.3J $mol^{-1}$ $K^{-1}$)
   $C_p(H_2O,$ s) =36.8 J $mol^{-1}$ $K^{-1}$) (Mains, 2017)

   A) 5.44 kJ/mol
   B) 5.81 kJ/mol
   C) 6.56 kJ/mol
   D) 6.00 kJ/mol

   **Ans: 6.56 kJ/mol**

   Explanation:
   $\Delta H = \Delta H_1 + \Delta_{fus}H + \Delta H_2$

   $\Delta H_1$: Enthalpy change for solid ice from -5 ˚C to 0 ˚C

   $\Delta H_2$: Enthalpy change for liquid water from 0 ˚C to 5 ˚C

   So, $\Delta H = 1\times 36.8/1000 \times(0-(-5)) +6+1\times 75.3/1000\times(5-0)=6.56$