The following method was used. (method of lines)

We use overall heat balance equation for the first grid.

For the other grids :

+

The odes were solved using **ode15s**

The spatial coordinate was discretized using 2nd order finite difference equations.

For the above results the parameter values were as follows (all S I units)

Thermal Conductivity = 0.1 J m-1 s-1 K-1

Specific Heat = 1500 J kg-1 K-1

Density = 800 kg m-3

Temperature Surface = 1200K

Air Temperature = 300 K

Length, Width , Height = 1m

Overall Heat transfer coefficient = 32 J s-1 K-1 (around this value)

