Assignment 2

Partial Differential Equation

A thin rectangular homogenous thermally conducting plate occupies the region $0 \leq x \leq$ $0 \leq y \leq b$. The edge y=0 is held at temperature $Tx(x-a)$, where T is a constant and t other edges are maintained at 0°. The other faces are insulated and there is no heat sourc sink inside the plate. Find the steady state temperature inside the plate.

Find the one-dimensional diffusion equation (parabolic equation) satisfying the boundar conditions

(i) T is bounded as $t \to \infty$

(ii) $\frac{\partial T}{\partial x}=0$ at $x=0$ and a for all t

(iii) $T(x,0) = x(a-x), 0 < x < a.$

Please submit it on google classroom on and before 5 pm (May, 03, 2020).