1- A 4-m-high and 6-m-wide wall consists of a long 18-cm\texttimes30-cm cross section of horizontal bricks ($k = 0.72 \text{ W/m.K}$) separated by 3-cm-thick plaster layer ($k = 0.22 \text{ W/m.K}$). There are also 2-cm-thick plaster layers on each side of the wall, and a 2-cm-thick rigid foam ($k = 0.026 \text{ W/m.K}$) on the inner side of the wall. The indoor and the outdoor temperatures are 22°C and -4°C, and the convection heat transfer coefficients on the inner and the outer sides are $h_i = 10 \text{ W/m}^2\text{K}$ and $h_o = 20 \text{ W/m}^2\text{K}$, respectively. Assuming one-dimensional heat transfer and disregarding radiation, determine the rate of heat transfer through the wall.

2- Consider a 5-m-high, 8-m-long, and 0.22-m-thick wall whose representative cross section is as given in the figure. The thermal conductivities of various materials used, in W/m.K, are $k_A = k_F = 2$, $k_B = 8$, $k_C = 20$, $k_D = 15$, and $k_E = 35$. The left and right surfaces of the wall are maintained at uniform temperature of 300 °C and 100 °C, respectively. Assuming one-dimensional heat transfer through the wall, determine (a) the rate of heat transfer through the wall; (b) the temperature at the point where the sections B, D, and E meet; and (c) the temperature drop across the section F. Neglect any contact resistances at the interfaces.