

## Task 1

Samira Habibi Talkhooncheh

P.Code: 10719231

### Summary:

Heat transfer takes place in liquid, gas as well as solid materials. Factors of heat transferring through a wall are as follows:

- 1) Heat transfer through a wall is obviously proportional to its area.
- 2) The temperature difference between two sides of the wall.
- 3) The thickness of the wall.
- 4) Type of the material.

To sum up, the thicker the wall, the less heat goes through it. In addition, as the type of material, wood can be a good choice to have an acceptable heat transfer. Furthermore, temperature difference has its own effect on heat transfer, as an example, the heat transfer goes up in January.

1.

$$Q = KA \frac{\Delta T}{L} = 0.78 \times 20 \times \frac{25}{0.4} = 975(w)$$

2.

$$R_{WALL} = \frac{L}{KA} = \frac{0.4}{0.78 \times 20} \approx 0.02564(^{\circ}C / W)$$

$$Q = \frac{\Delta T}{R_{WALL}} = \frac{25}{0.02564} \approx 975.04(w)$$