**EXERCISE 1**

We want to have a house isolated from the main grid for a period of 6 days.

During these 6 days the house elecric loads (TV, Microwave, Whasing machine, oven, fridge,

lighting) shall be supplied from a Battery Pack. At the seventh day the Battery Pack will be

completely recharged again.

List of electric loads in the house:

* The TV consumes 50W and works for 4 hours a day
* The lighting consumes 10W and works for 6 hours a day
* The whasing machine consumes 1kW and and works for 2 hours a day
* The oven consumes 2kW and works during 1 hour a day
* The fridge consumes 300W and woks 4 hours a day

The Battery Pack shall be able to supply the house loads during the 6 days the house is isolated

from the grid.



Figure 1: Schematic of the proposed problem.

**Question 1: Determine the needed Battery Pack Nominal Energy (Wh) have a maximun Depth of Discharge DOD of 30% during those 6 days in which the house is isolated from the main electrical grid.**

**Question 2: Use the following lead acid battery to make the battery pack for the application. The power converter on the battery pack needs 48Vdc in the DC side.**

