**Take home final. 25 points Due around the time you take the final.**

Your company is struggling with labor costs. Currently, you have 10 full time employees and 6 part time employees. The factory opens at 7 am. and closes at 7 pm Monday - Friday. Full time employees work 8 hours and part time employees work between 3 and 5 hours a day. These work times must be consecutive (If you work in hour i and i+2, then you have to work hour i+1.). Full and part time employees are all paid $25 an hour (this includes all benefits). Due to the size of your factory, at most 13 people can be working at any time. To mitigate the problems of a nonnormal work day, individuals working after 5 pm or before 9 am make an extra $5 per hour. Over time is paid $40 an hour and is limited to at most 2 hours a day. Only full time people can work overtime. Individuals working overtime do not make the extra $5 per hour.

You may assume that the employees will work the schedule you propose. The company needs a total of 600 hours of labor each week. You will create the best daily schedule and use this schedule for all 5 days.

Create an IP that generates an optimal employees schedule. Solve it and provide a readable answer with your model. I am hoping for a really easy grading due to your ability to provide a readable solution! I will take off points if I have to search too long to find your solution or if it is in some cryptic mathematical language.