ECO316: Applied Game Theory

Problem Set #7 Solutions

1. **Stable Matching:**

   (a) No, this is not a stable match. One potential blocking pair is (M_2, W_1) as M_2 prefers W_1 to W_2 and W_1 prefers M_2 to M_1. Another blocking pair is (M_3, W_2).

   (b) To find the M-optimal stable match, we run MP-DA. Since each man proposes to a different woman, the algorithm ends after one round with the following matching: (M_1, W_1), (M_2, W_3), and (M_3, W_2). To find the W-optimal stable match, we run WP-DA. Again, since each woman proposes to a different man, the algorithm ends after one round with the following matching: (M_2, W_1), (M_1, W_2), and (M_3, W_3). You can observe that for each woman, she strictly prefers her match in WP-DA to MP-DA (in fact, two of the three women receive their least-favourite match in MP-DA).

   (c) Yes, since WP-DA yields the W-optimal match, it is incentive compatible for women to truthfully reveal their preferences under this algorithm. However, it is not incentive compatible for women to truthfully reveal their preferences under MP-DA. In particular, suppose that each woman