MAT347Y1 HW6 Marking Scheme

Friday, October 24

Total: 28 points.

4.2.8: 4 points, graded holistically on clarity and correctness.

4.3.22: 5 points.

- (1) size of set of n-cycles (and the set is a subset A_n)

- (2) size of the centralizer of an n-cycle

- (2) size of the conjugacy class of an n-cycle via orbit-stabilizer

Note: 2 points were removed if you cited problem 19 or 21 without proof. Feel free to show Jonathan your marked assignment (to show that you did indeed cite the problem) and a written-up solution to the problem you cited in order to get marks back.

4.4.8:

(a) 2 points.

(b) 4 points (2 per proof).

(c) 2 points.

4.6.3: 6 points.

- (1) Define an action of S_n on cosets

- (3) Determine all normal subgroups of S_n (if you stated this without proof, you can write up a solution to this and show Jonathan to get marks back)

- (2) Deal with each of $\{1\}$ and A_n as possible kernels

4.6.3: 5 points.

- (4) Correct list of decomposition series

- (1) Noting two different orderings of decomposition factors