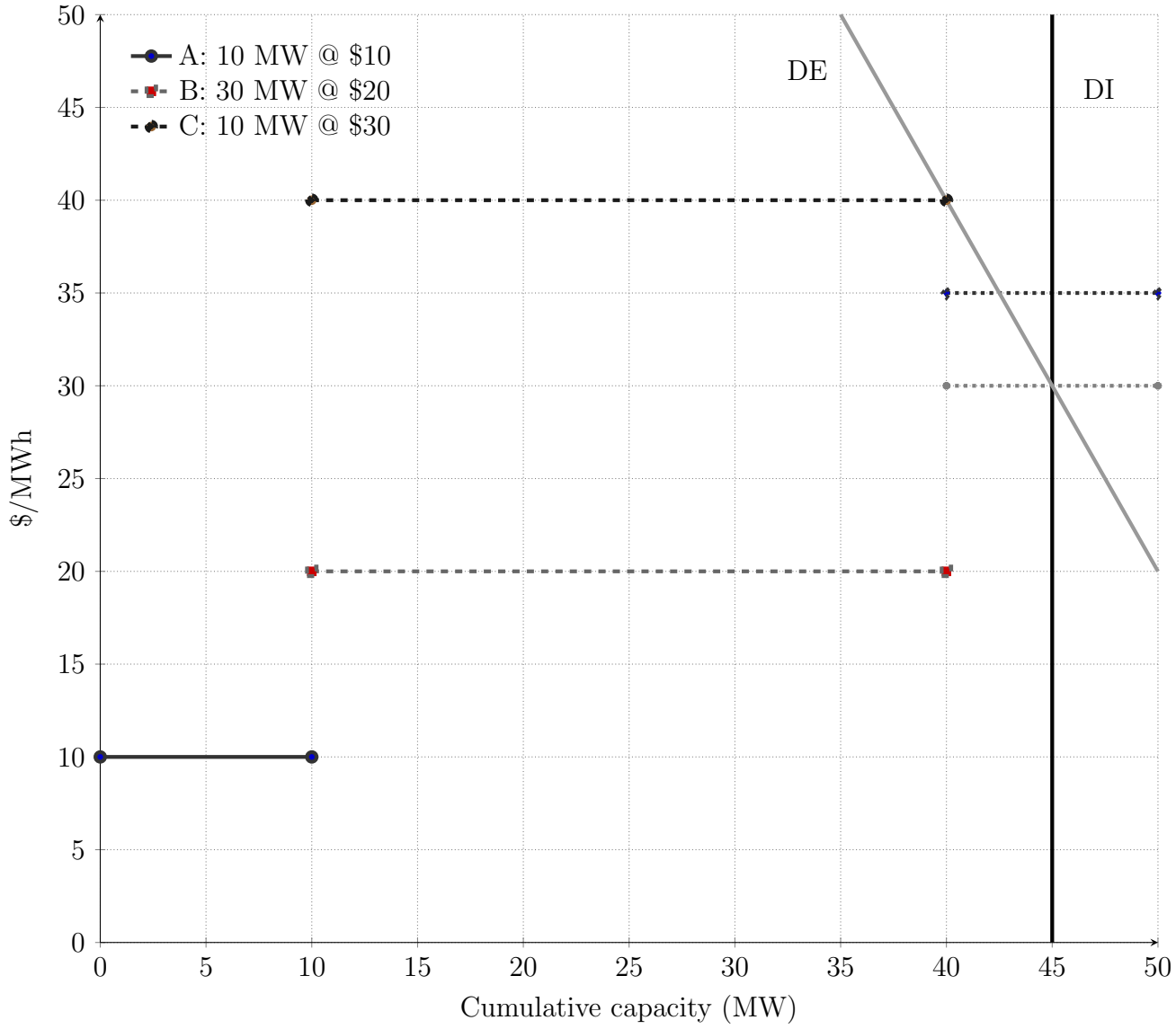
Econ 3391 – Quiz 2

PRINT NAME: _____

Setup

Consider an electricity market with three plants (same as last quiz): a nuclear plant (A) with zero emissions, a coal plant (B) with high emissions and a gas plant (C) with medium emissions. The table below lists their capacities, baseline (private) marginal costs, and social marginal costs (inclusive of the external costs of emissions).

Plant	**Capacity (MW)**	**Private MC ($/MWh)**	**Social MC ($/MWh)**
A - Nuclear	10	10	10
B - Coal	30	20	40
C - Gas	10	30	35



Questions (1 point each)

The figure provided includes the private and social marginal costs of each plant, where plants are sorted by private marginal costs. It also displays two possible demand curves: An inelastic demand curve (DI) and an elastic demand curve (DE). The next two questions ask you to compare outcomes under these two demand curves.

1. Imagine that a Piguovian tax is imposed, so that firms bid their true social marginal cost. Compare the resulting price under the two demand curves.
    A. The price will be higher under inelastic demand curve DI.
    B. The price will be higher under elastic demand curve DE.
    C. The price will be the same under the two demand curves.
    D. Not enough information to tell.

2. Now compare emissions (externalities) under the two demand curves under the tax.
    A. Emissions will be lower under inelastic demand curve DI.
    B. Emissions will be lower under elastic demand curve DE.
    C. Emissions will be the same under the two demand curves, but lower than the baseline.
    D. Emissions after the tax will be the same as the baseline under both demand curves.

3. Now let's consider the long run impact of the tax. Assume we are in the inelastic demand case (DI).

    There is a second nuclear plant site nearby that is permitted and ready to go. But the developer chose not to build the plant prior to the tax. Now, after the tax is imposed, she announces that the second nuclear plant will enter. From this, we can conclude that the LCOE of the second nuclear plant is:
    A. \$10/MWh.
    B. Greater than \$10/MWh but less than \$30/MWh.
    C. Greater than \$30 but less than \$40/MWh.
    D. Greater than \$40/MWh.
    E. Note enough information to tell.

4. The external cost of pollution from these plants occurs largely in the future. So when we compute a Pigouvian tax to impose on electricity production today, we first need to put those social costs in present value terms.

    Fill in the following sentence: If we assume a _____ discount rate, then the level of the Pigouvian tax on firms will _____.
    A. higher; increase.
    B. higher; decrease.
    C. lower; decrease.
    D. Not enough information to tell.