

### Quiz 7 — Romer's (1990) model

| Questions                                                                                                                        | Answers                                                                                                                                                                                                                                                                                                                                                                                       |
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| 1. In Romer's (1990) model, the first welfare theorem does not apply because:                                                    | <input type="checkbox"/> The production function is not homogeneous of degree one.<br><input type="checkbox"/> There is an externality.<br><input type="checkbox"/> There is no perfect competition on the final goods market.<br><input type="checkbox"/> None of the above.                                                                                                                 |
| 2. In Romer's (1990) model, if perfect competition were imposed on the intermediate goods market, what would the consequence be? | <input type="checkbox"/> There would no longer be any profit on that market.<br><input type="checkbox"/> Every intermediate good would be priced at one (because of the intermediate producer's production function).<br><input type="checkbox"/> Every intermediate good would have an infinite price (Inada condition).<br><input type="checkbox"/> There would no longer be any invention. |
| 3. Romer's (1990) model explains growth by:                                                                                      | <input type="checkbox"/> A rate of technical progress $g$ .<br><input type="checkbox"/> Technical progress equal to capital per head for every firm.<br><input type="checkbox"/> Intentional and remunerated technical progress.<br><input type="checkbox"/> Technical progress caused by the diffusion of knowledge.                                                                         |
| 4. If the second derivative of $Y_{i,t}$ with respect to $N_t$ is negative, what can we say?                                     | <input type="checkbox"/> The more varieties of goods $N_t$ there are, the less final good is produced.<br><input type="checkbox"/> The more firms producing intermediate goods there are, the less final good is produced.<br><input type="checkbox"/> The returns to the varieties of intermediate goods are decreasing.<br><input type="checkbox"/> None of the above.                      |

| Questions                                                                                                                                                     | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| 5. On top of the usual properties of $F$ , we assume that the production function is additively separable in each of the intermediate goods, because we want: | <input type="checkbox"/> Intermediate goods to be neither direct substitutes nor direct complements (otherwise there would be no monopoly).<br><input type="checkbox"/> Intermediate goods to be direct substitutes but not direct complements.<br><input type="checkbox"/> Intermediate goods not to be direct substitutes, but to be direct complements.<br><input type="checkbox"/> The derivative of $F$ with respect to a good $i$ used by a final-good firm $j$ not to depend on the $X_{i,k,t}$ for $k \neq i$ .                                                                            |
| 6. The returns to intermediate goods in the production of the final good are:                                                                                 | <input type="checkbox"/> Strictly decreasing at the intensive margin, but constant at the extensive margin.<br><input type="checkbox"/> Constant at the intensive margin, but strictly decreasing at the extensive margin.<br><input type="checkbox"/> Strictly decreasing in the use of a new type of good, but constant in the use of more units of an intermediate good already in the production function.<br><input type="checkbox"/> Constant in the use of a new type of good, but strictly decreasing in the use of more units of an intermediate good already in the production function. |