Martin Luther University Halle-Wittenberg
Professor Dr. O. Holtemöller

Example Exam Questions

Advanced Macroeconomics

Winter 2025/26

Three points are awarded for all questions, unless additional points are specified.

1 Returns to Scale

Which statement about returns to scale is correct?

1. Constant returns to scale mean that if inputs are increased by a factor of a, output remains constant.
2. Increasing returns to scale mean that if inputs are increased by a factor of a, output increases by a factor of b.
3. Constant returns to scale mean that if inputs are increased by a factor of a, output increases by a factor of a.
4. No statement is correct.

2 Optimal Consumption in Static Model

Given a utility function $u(c_1, c_2) = 0.5 \ln(c_1) + 0.5 \ln(c_2)$ and a budget constraint $p_1 c_1 + p_2 c_2 = y$ with disposable income $y = 1$, prices $p_1 = 1$ and $p_2 = 0.5$, derive the optimal amount of consumption c_1. Round the result to one decimal.
0.5 **correct**

3 Code Analysis

The figure shows a snipped from a Dynare file. What is the error in this code? (+1 pt.)

```
% endogenous variables
var
    k
    c
    lam
;
predetermined_variables
    k
;

% exogenous variables
varexo
    z
;

% parameters
parameters
    alpha
    beta
    delta
;
alpha = 0.3;
beta = 0.98;
delta = 0.03;

model;
[name = 'Euler equation']
1 = beta*(c(+1)/c)^(-1)*(alpha*z*k^(alpha-1)+1-delta);

[name = 'aggregate resources']
z*k(-1)^alpha = c + k - (1-delta)*k(-1);

[name = 'marginal utility']
lam = 1/c;
end;

% provide analytical steady state
initval;
z = 1;
k = 4;
c = 1;
lam = 1;
end;

% inital steady state
steady;
```

1. There is a missing equation.
2. The timing of capital is not correct.
3. A parameter has no value.
4. There are not all initial values of endogenous variables provided.