## Macroeconomics: Economic Cycles, Frictions and Policy The Search & Matching Model of Unemployment Practice Problems September 2019

1. Consider the search & matching model discussed in the lectures. Assume that the matching function takes the form,

$$m(u,v) = Au^{\gamma}v^{1-\gamma}, \quad A > 0, \quad \gamma \in (0,1),$$
(1)

where u denotes the unemployment rate, v the vacancy rate and m the rate of matches (i.e. the number of matches divided by the labor force in the economy) and A denotes the efficiency of the matching function.

- (a) Calculate the probability of finding a job and the probability of filling a vacancy.
- (b) Show that the Beveridge curve is downward-sloping and convex.
- (c) Assume that the parameter A in the matching function falls. You can interpret this as an increase in the degree of mismatch in the economy. Using the graphical representation of the model show how this change in the matching function affects the equilibrium wage, labor market tightness, vacancy and unemployment rates.
- 2. Use the graphical representation of the search & matching model to determine what happens to labor market tightness and the unemployment rate when
  - (a) Matches between firms and workers become more productive
  - (b) The value of the outside option for unemployed individuals increases