1. Describe in some detail the “stylized business cycle facts” as presented in class.

2. Write down the 8 equations characterizing the competitive equilibrium of the real business cycle model. List the exogenous variables and the endogenous variables. Describe in words (i) where each equation comes from and (ii) the direction in which prices and exogenous variables affect the endogenous variables.

3. Graphically depict the equilibrium of the RBC model, using the five part graph plus the money market graph. Write down, in words, the definition of the $Y_d$ and $Y_s$ curves. Explain why the $Y_d$ curve slopes down and the $Y_s$ curve slopes up. Identify which exogenous variables will affect which curve and in which direction.

4. Separately consider exogenous changes in each of the exogenous variables in the RBC model. Graphically show how they affect the equilibrium values of the endogenous variables.

5. In our baseline model of production, write down the maximization problem of a hypothetical “social planner” who desires to maximize the utility of the representative household subject to the scarcity that the economy as a whole faces. Discuss the main way in which this problem differs from the competitive equilibrium setup. Find the first order conditions characterizing the solution to the planner’s problem, and compare them to the first order conditions of the competitive equilibrium solution.

6. In the context of the real business cycle model, what is the only exogenous variable that can be the main source of business cycle fluctuations? Explain why? Are declines in that exogenous variable welfare improving or welfare reducing? Should policy react to changes in this exogenous variable? Why or why not?

7. What is the main friction that differentiates the New Keynesian model from the RBC model? Does that friction strike you as reasonable and intuitive? Discuss, in words, how that friction works at the micro level.

8. Write down the algebraic expression for the Phillips Curve. Explain why it looks the way it does. Explain what the parameter $\gamma$ measures. Graph the Phillips Curve in a graph with $P_t$ on the vertical axis and $Y_t$ on the vertical axis. Discuss which variables are held fixed in drawing the Phillips Curve, and how changes in those variables will cause the Phillips Curve to shift.
9. Write down the 8 equations characterizing the equilibrium of the New Keynesian model. Discuss how it differs from the RBC model.

10. What is the LM curve? Graphically show it and discuss which variables are held fixed in graphing it and how changes in those variables will cause the curve to shift.

11. What is the IS curve? Graphically derive it. Show how the different exogenous variables will cause the IS curve to shift.

12. What is the AD curve? Graphically derive and verbally define it. Discuss which exogenous variables will cause it to shift and in which direction.

13. How does the labor market work in the New Keynesian model? What does the labor demand curve look like? In what sense do we “reverse the order” of how we approach markets in going from the RBC to the New Keynesian model?

14. Show how an exogenous change in \( M_t \) will affect the endogenous variables of the New Keynesian model. Provide some intuition for these effects.

15. Show an exogenous change in \( A_t \) will affect the endogenous variables of the New Keynesian model. Are the effects on variables like output and the real interest rate the same, smaller, or larger than they would be if prices were flexible? Provide some intuition.

16. Consider exogenous changes in \( A_{t+1}, q, G_t, \) and \( G_{t+1} \) separately in the New Keynesian model. Assume, as in class and the notes, that these changes have no effect on \( Y_t^f \). Explain why we make this assumption. Graphically show how the endogenous variables of the model are affected (the effects are the same in the graphs for any of these exogenous variables). Be sure to discuss how \( C_t \) and \( I_t \) are affected as well (these effects will depend on the specific exogenous variable that is changing).

17. Repeat the previous three exercises, but consider the “dynamics” at play (i.e. allow \( P_t^e \) to eventually react to changes). Show how the endogenous variables are affected in the medium run, and discuss how those effects differ from the short run.

18. Describe (in words) how monetary policy ought to react to changes in the other exogenous variables in the model. Explain the intuition for why. Graphically show how policy should react to both a “supply” shock (change in \( A_t \)) as well as a “demand” shock (an exogenous change which shifts the IS curve).

19. Explain in words why the nominal interest rate cannot go below zero, while the real interest rate can.

20. How does the zero lower bound affect the IS-LM-AD-PC diagrams? Graphically show how supply and demand shocks affect the equilibrium values of the endogenous variables under the zero lower bound.

21. What is mean by a “deflationary expectations trap”? Discuss how this might arise in the context of the New Keynesian model where the zero lower bound binds.

22. Write a couple of paragraph narrative describing the causes and immediate aftermath of the Great Recession. Describe how endogenous variables like output, employment, interest rates, and prices acted around that time. Talk about the important roles of the housing market and
the financial sector in driving the Great Recession, and talk about how the zero lower bound on nominal interest rates may have made things worse.

23. Use our graphs to analyze the Great Recession. Focus on two “stages”: the first stage where the housing market collapsed, and the second stage where the financial system collapsed and nominal interest rates hit zero.

24. Describe three different levels of non-standard policy responses to the crisis, and talk about how you would map those into our model.

25. In words, map the objectives of the “non-standard” monetary policy of 2008 onward into our model.

26. Discuss why fiscal stimulus (an increase in $G_t$) might might have bigger effects on output when the zero lower bound is binding.