ANSWERS TO END-OF-CHAPTER QUESTIONS

19-1  (Key Question) Use the aggregate demand-aggregate supply model to compare the “old” classical and Keynesian interpretations of (a) the aggregate supply curve and (b) the stability of the aggregate demand curve. Which of these interpretations seems more consistent with the realities of the Great Depression?

(a) Classical economists envisioned the AS curve as being perfectly vertical. When prices fall, real profits do not decrease because wage rates fall in the same proportion. With constant real profits, firms have no reason to change the quantities of output they supply. Keynesians viewed the AS curve as being horizontal at outputs less than the full-employment output and vertical only at full employment. Declines in aggregate demand do not change the price level because wages and prices are assumed to be inflexible downward.

(b) Classical economists viewed AD as stable so long as the monetary authorities hold the money supply constant. Therefore inflation and deflation are unlikely. Keynesians viewed the AD curve as unstable—even if the money supply is constant—since investment spending is volatile. Decreases in AD can cause a recession; rapid increases in AD can cause demand-pull inflation.

(c) The Keynesian view seems more consistent with the facts of the Great Depression; in that period, real output declined by nearly 40 percent in the United States and remained low for a decade.

19-2 According to mainstream economists what is the usual cause of macroeconomic instability? What role does the spending-income multiplier play in creating instability? How might adverse aggregate supply factors cause instability, according to mainstream economists?

The mainstream view of macroeconomic instability is Keynesian-based and focuses on aggregate spending and its components. Particularly significant are changes in investment spending, which change aggregate demand and, occasionally, adverse supply shocks, which change aggregate supply.

Investment spending is subject to wide variations, and a “multiplier effect” magnifies these changes into even greater changes in aggregate demand, which can cause demand-pull inflation in the forward direction or a recession if investment spending falls.

In the mainstream view, a second source of instability could arise on the supply side. Wars or an artificial supply restrictions boost may increase per-unit production costs. The result is a sizable decline in a nation’s aggregate supply, which could destabilize the economy by simultaneously causing cost-push inflation and recession.

19-3 State and explain the basic equation of monetarism. What is the major cause of macroeconomic instability, as viewed by monetarists?

The fundamental equation of monetarism is the equation of exchange. \( MV = PQ \). The left side, \( MV \), represents the total amount spent [\( M \), the money supply \( \times V \), the velocity of money, (the number of times per year the average dollar is spent on final goods and services)]. The right side, \( PQ \), equals the nation’s nominal GDP [\( P \) is the price level or more specifically, the average price at which each unit of output is sold. \( Q \) is the physical volume of all goods and services produced].

Monetarists believe changes in the money supply, in particular, inappropriate monetary policy, is the single most important cause of macroeconomic stability.

19-4  (Key Question) Suppose that the money supply and the nominal GDP for a hypothetical economy are $96 billion and $336 billion, respectively. What is the velocity of money? How will
households and businesses react if the central bank reduces the money supply by $20 billion? By how much will nominal GDP have to fall to restore equilibrium, according to the monetarist perspective?

Velocity = 3.5 or 336/96. They will cut back on their spending to try to restore their desired ratio of money to other items of wealth. Nominal GDP will fall to $266 billion (= the $76 billion remaining money supply x 3.5) to restore equilibrium.

19-5 Briefly describe the difference between a so-called real business cycle and a more traditional “spending” business cycle.

In the real-business-cycle theory, business fluctuations result from significant changes in technology and resource availability. These changes affect productivity and thus the long-run growth trend of aggregate supply. The changes in aggregate supply then induce changes in the demand for money, which in this controversial scenario then leads to a change in the money supply, which allows adjustment in output without changes in the price level. The conclusion of the real-business-cycle theory is that macro instability arises on the aggregate supply side of the economy, not on the aggregate demand side as both mainstream economists and monetarists generally say.

19-6 Craig and Kris were walking directly toward each other in a congested store aisle. Craig moved to his left to avoid Kris, and at the same time Kris moved to his right to avoid Craig. They bumped into each other. What concept does this example illustrate? How does this idea relate to macroeconomic instability?

This example illustrates a coordination failure that occurs in macroeconomics when people do not reach a mutually beneficial equilibrium because they lack some way to jointly coordinate their actions.

Expectations of households and business firms can create an undesirable outcome. If individuals expect others to cut spending and anticipate excess capacity, they will cut their own investment and consumption as well. Aggregate demand will decline and the economy will experience a recession due to a self-fulfilling prophecy. Once the economy is depressed, producers and households have no individual incentive to increase spending. If all participants would agree to simultaneously increase spending, then aggregate demand would rise and real output and real income would expand. Each producer and consumer would be better off. But this mutually beneficial outcome will not occur because there is no mechanism by which to coordinate their actions.

19-7 (Key Question) Use an AD-AS graph to demonstrate and explain the price-level and real-output outcome of an anticipated decline in aggregate demand, as viewed by RET economists. (Assume that the economy initially is operating at its full-employment level of output.) Then, demonstrate and explain on the same graph the outcome, as viewed by mainstream economists.

See the graph and the decline in aggregate demand from AD₁ to AD₂. RET view: The economy anticipates the decline in the price level and immediately moves from a to d. Mainstream view: The economy first moves from a to b and then to c. In the long run AS will shift right (as nominal wages fall), intersecting AD₂ at point d. In view of historical evidence, the mainstream view seems more plausible to us than the RET view.
What is an efficiency wage? How might payment of an above-market wage reduce shirking by employees and reduce worker turnover? How might efficiency wages contribute to downward wage inflexibility, at least for a time, when aggregate demand declines?

An efficiency wage is one that minimizes the firm’s labor cost per unit of output. Normally, we could assume that the market wage for the particular type of labor would be efficient, since it is the lowest wage that could be paid to obtain workers in the classification. Firms may discover, however, that paying a wage that is higher than the market wage will lower their wage cost per unit of output. There are a number of reasons for this possible outcome.

First, the above-a market wage raises the opportunity cost of losing the job and gives workers an incentive to retain their relatively high-paying job. Worker productivity is likely to be higher and in a sense the higher wage more than pays for itself.

Second, motivated workers require less supervision. If the firm needs fewer supervisory personnel to monitor work performance, the overall wage cost per unit of output can be lower.

Third, the above-market pay discourages workers from voluntarily leaving their jobs and the lower turnover rate reduces the firm’s cost of hiring and training new workers. It also gives the firm a better selection of potential workers, since the above-market wage would increase applications. With a high retention rate and a good pool of applicants, the firm is likely to maintain a more experienced and productive work force.

Efficiency wages are likely to contribute to downward wage inflexibility. Wage cuts may encourage shirking, require more supervising personnel and increased turnover. Wage cuts that reduce productivity and raise per-unit labor costs are self-defeating.

How might relationships between so-called insiders and outsiders contribute to downward wage inflexibility?

Insiders are workers who retain employment even during recession. Outsiders are workers laid off from a particular firm and other unemployed workers who would like to work at that firm. Insider-outsider theory suggests that wages will be inflexible downward even when aggregate demand declines. Employers seem to believe that hiring unemployed workers at a reduced wage is not worth the disruption it could cause the business. Insiders are already trained, know their jobs, and may work in teams. Replacing them with outsiders may cost more than the saving in reduced wages.

Use the equation of exchange to explain the rationale for a monetary rule. Why will such a rule run into trouble if V unexpectedly falls because of, say, a drop in investment spending by businesses?
MV = PQ. If we assume that V (velocity) is constant, increasing the money supply at the same rate as the anticipated increase in real output (Q) would leave the price level (P) unchanged. If velocity is not stable and changes unexpectedly, a steady rate of growth of the money supply may not be sufficient to keep the economy on the desired path of noninflationary growth of real output.

19-11 Answer parts (a) and (b) on the basis of the following information for a hypothetical economy in year 1: money supply = $400 billion; long-term annual growth of potential GDP = 3 percent; velocity = 4. Assume that the banking system initially has no excess reserves and the reserve requirement is 10 percent. Also assume that velocity is constant and the economy initially is operating at its full-employment real output.

(a) What is the level of nominal GDP in year 1?
(b) Suppose the Fed adheres to a monetary rule through open-market operations. What amount of U.S. securities will it have to sell to, or buy from, banks or the public between years 1 and 2 to meet its monetary rule?

The equation of exchange MV = PQ allows us to calculate nominal GDP by multiplying M (400 billion) times V(4).

(a) Nominal GDP is 1,600 billion in year 1
(b) To achieve a 3% growth rate, an increase in nominal GDP of $48 billion, the money supply would have to increase by $12 billion.

MV = 1,648 (412 x 4) = 1,648.

Assuming a 10% reserve requirement and all money in the form of bank deposits, a money multiplier of 10 would suggest that the Federal Reserve would need to purchase $1.2 billion in U.S. Government securities in order to achieve the required monetary growth over the course of the year.

19-12 Explain the difference between “active” discretionary fiscal policy advocated by mainstream economists and “passive” fiscal policy advocated by new classical economists. Explain: “The problem with a balanced-budget amendment is that it would, in a sense, require active fiscal policy—but in the wrong direction—as the economy slides into recession.”

Active discretionary fiscal policy entails the use of deficit spending during recessions, that is, increasing government spending, and/or cutting taxes to expand aggregate demand, and to use contractionary fiscal policy, running a budget surplus, all to ward off inflationary pressures when necessary.

New classical economists, monetarists, and rational expectationists see the economy as automatically self-correcting when disturbed from its full-employment level of real output. They are opposed to using discretionary fiscal policy to create budget deficits or budget surpluses.

Mainstream economists vigorously defend the use of both discretionary fiscal and monetary policies. They believe that both theory and empirical data support the use of countercyclical measures. Requiring an annually balanced budget would require the use of fiscal policy that would intensify the swings in the business cycle, rather than help reduce variations in output.

19-13 (Key Question) Place “MON,” “RET,” or “MAIN” beside the statements that most closely reflect monetarist, rational expectations, or mainstream views, respectively.

a. Anticipated changes in aggregate demand affect only the price level; they have no effect on real output.

b. Downward wage inflexibility means that declines in aggregate demand can cause long-lasting recession.
c. Changes in the money supply $M$ increase $PQ$; at first only $Q$ rises because nominal wages are fixed, but once workers adapt their expectations to new realities, $P$ rises and $Q$ returns to its former level.

d. Fiscal and monetary policy smooth out the business cycle.

e. The Fed should increase the money supply at a fixed annual rate.

(a) RET
(b) MAIN
(c) MON
(d) MAIN
(e) MON

19-14 You have just been elected president of the United States, and the present chairman of the Federal Reserve Board has resigned. You need to appoint a new person to this position, as well as a person to chair your Council of Economic Advisers. Using Table 19-1 and your knowledge of macroeconomics, identify the views on macro theory and policy you would want your appointees to hold. Remember, the economic health of the entire nation—and your chances for reelection—may depend on these selections.

The appointments to chair the Federal Reserve Board and the Council of Economic Advisors would depend on what coalition of interest groups contributed to my campaign and helped put me in office.

A Democratic president is likely to appoint economists with a mainstream approach and who are in favor of active fiscal and monetary policies. Since labor unions may have contributed, supply-siders need not apply.

During the Reagan administration (1981-1988) supply-side policies were implemented. One of the first actions taken was to fire striking air traffic controllers. Labor unions were shaken by the action, since they are usually most successful representing highly skilled workers and air traffic controllers are among the most specialized and skilled workers in the nation. This risky but successful move set the tone for supply-side policies, which were designed to reduce the costs of production, increase worker productivity and shift aggregate supply to the right. In addition to reducing the power of labor unions the Reagan administration tried to reduce government regulation of business in many areas and cut marginal tax rates in an effort to increase saving and investment.

Conservative Republican candidates for president are most likely to surround themselves with economic advisers who are monetarists or rational expectationists since both favor a reduced role for government and would be against the use of discretionary fiscal policy to manage aggregate demand. Both would favor the use of a monetary rule and reliance upon the market system to be self-adjusting.

19-15 (Last Word) Compare and contrast the Taylor Rule for monetary policy with the older, simpler monetary rule advocated by Milton Friedman.

The monetary rule advocated by Friedman, the “monetarist rule,” is passive. It requires consistent expansion of the money supply regardless of economic conditions. The “Taylor rule” is activist and counter cyclical. It allows the Fed to adjust the money supply and interest rates in expansionary or contractionary fashion depending on economic conditions. However, it is similar to the monetarist prescription by stating the Fed’s policy changes precisely in response to a variety of economic conditions.