Intermediate Macroeconomics 311

2nd Midterm, February 20th, 2023

Note: This is a closed book exam. You may use calculators.   **SECTION/TA:** _____

YOUR NAME: _____

Directions: Answer each of the following questions. Show all your   **NetID:** _____

work. No partial credit will be given. Good Luck!

Multiple Choice Questions' Answer Grid

Answers outside the grid will not be graded!

1		6		11		16		21		26	
2		7		12		17		22		27	
3		8		13		18		23		28	
4		9		14		19		24		29	
5		10		15		20		25		30	

PART A: Multiple choice. Choose the one alternative that best completes the statement or answers the question. Fill your answer in the answer grid provided. *(30 points: 1 point each)*

1) If an economy is in a liquidity trap, then an expansionary monetary policy ends up increasing:

   a) the interest rate.
   b) output.
   c) investment.
   d) the liquidity of household portfolio.

2) The debt-deflation hypothesis explains the fall in income as a consequence of unexpected deflation transferring wealth from _____, and that creditors have a _____ propensity to consume than debtors.

   a) debtors to creditors; smaller
   b) debtors to creditors; larger
   c) creditors to debtors; smaller
   d) creditors to debtors; larger

3) Compared to a closed economy, an open economy is one that:

   a) allows the exchange rate to float.
   b) fixes the exchange rate.
   c) trades with other countries.
   d) does not trade with other countries.

4) In a small open economy with perfect capital mobility, if the domestic interest rate were to rise above the world interest rate, then _____ would drive the domestic interest rate back to the level of the world interest rate.

   a) capital inflow
   b) capital outflow
   c) the central bank
   d) a decline in domestic saving

5) If the short-run IS–LM equilibrium occurs at a level of income below the natural level of output, then in the long run the price level will _____, shifting the _____ curve to the right and returning output to the natural level.

   a) increase; IS
   b) decrease; IS
   c) increase; LM
   d) decrease; LM

6) A depreciation of the dollar has which of the following effects on the U.S. international indebtedness position:

   a) makes it more negative
   b) has no effect
   c) makes it less negative
   d) makes it more negative then less negative

7) With the real money supply held constant, the theory of liquidity preference implies that a higher income level will be consistent with:

   a) no change in the interest rate.
   b) a lower interest rate.
   c) a higher interest rate.
   d) first a lower and then a higher interest rate.

8) According to Olivier Blanchard, Europeans are more likely to use increases in real wages resulting from technological progress to increase _____, and Americans are more likely to use these increases in real wages to increase _____.

   a) hours of work; hours of leisure
   b) consumption of goods and services; hours of leisure
   c) hours of leisure; consumption of goods and services
   d) unemployment insurance benefits; efficiency wages

9) Which of the following statements is not accurate. The employment-population ratio:

   a) increased from 2009 to 2010
   b) decreased from 2008 to 2009
   c) decreased from 2019 to 2020
   d) increased from 2020 to 2021

10) The reason that the income response to a fiscal expansion is generally less in the IS–LM model than it is in the Keynesian-cross model is that the Keynesian-cross model assumes that:

   a) investment is not affected by the interest rate, whereas in the IS–LM model fiscal expansion raises the interest rate and crowds out investment.
   b) investment is not affected by the interest rate, whereas in the IS–LM model fiscal expansion lowers the interest rate and crowds out investment.
   c) investment is autonomous, whereas in the IS–LM model fiscal expansion encourages higher investment, which raises the interest rate.
   d) the price level is fixed, whereas in the IS–LM model it is allowed to vary.

11) The "subprime surge" refers to

   a) Inflation in 2021-22

b) mortgages granted to low-income families
c) soaring leverage of shadow banks
d) 1995-2000 when the stock market tripled in value

12) Data on unemployment in the United States show that:

a) most spells of unemployment are long.
b) most weeks of unemployment are attributable to the long-term unemployed.
c) members of the labor force over age 55 have the highest unemployment rates.
d) the duration of unemployment falls during recessions

13) The money hypothesis suggests that the Great Depression was caused by a:

a) leftward shift in the IS curve.
b) rightward shift in the IS curve.
c) leftward shift in the LM curve.
d) rightward shift in the LM curve.

14) If s is the rate of job separation, f is the rate of job finding, and both rates are constant, then the steady state unemployment rate is approximately:

a) $f/(f + s)$.
b) $(f + s)/f$.
c) $s/(s + f)$.
d) $(s + f)/s$.

15) Compared to 2008-09, the economy in 2020-21 differed in which way?

a) more of a decline in investment
b) more of a decline in consumer goods purchases
c) more of a decline in government spending
d) more of a decline in net exports

16) Starting from long-run equilibrium, if the velocity of money increases (due to, for example, the invention of automatic teller machines), the Fed might be able to stabilize output by:

a) decreasing the money supply.
b) increasing the money supply.
c) decreasing the price level.
d) increasing the price level.

17) The Pigou effect suggests that falling prices will increase income because real balances influence _____ and will shift the _____ curve.

a) money demand; LM
b) the money supply; LM
c) consumer spending; IS

d) government spending; IS

18) Government policies directed at reducing frictional unemployment include:

   a) abolishing minimum-wage laws.
   b) making unemployment insurance 100 percent experience rated.
   c) increasing the earned income credit.
   d) making government part of the union—firm wage bargaining process.

19) The "great moderation" occurred between

   a) 1965-1987
   b) 1975-1997
   c) 1985-2007
   d) 1995-2017

20) When the Federal Reserve reduces the money supply, at a given price level the amount of output demanded is _____, and the aggregate demand curve shifts _____.

   a) greater; inward
   b) greater; outward
   c) lower; inward
   d) lower; outward

21) The purchase of long-term government bonds, mortgage-backed securities and corporate debt with the intent of lowering interest rate on these kind of loans is known as _____, which is a part of _____.

   a) quantitative easing; unconventional monetary policy
   b) forward guidance; conventional monetary policy
   c) quantitative easing; loose fiscal policy
   d) forward guidance; tight fiscal policy

22) Using the aggregate demand-aggregate supply (AD-AS) model, the economic downturn caused by Covid-19 can be BEST described by a:

   a) rightward shift of long-run aggregate supply (LRAS) and leftward shift of AD.
   b) leftward shift of LRAS and leftward shift of AD.
   c) rightward shift of LRAS and upward shift of short-run aggregate supply (SRAS).
   d) leftward shift of AD and downward shift of SRAS.

23) An economic change that does not shift the aggregate demand curve is a change in:

   a) the money supply.
   b) the investment function.
   c) the price level.
   d) taxes.

24) Assets of banks include:

a) savings deposits.
b) currency in the hands of the public.
c) loans to customers.
d) demand deposits.

25) During a hyperinflation, real tax revenue of the government often drops substantially because of the:

a) delay between when a tax is levied and when it is collected.
b) significantly greater menu costs of printing tax forms.
c) additional deductions taken for increased shoeleather costs.
d) greater uncertainty associated with extreme rates of inflation.

26) In the Keynesian-cross model, a decrease in the interest rate _____ planned investment spending and _____ the equilibrium level of income.

a) increases; increases
b) increases; decreases
c) decreases; decreases
d) decreases; increases

27) A tax cut shifts the _____ curve to the right, and the aggregate demand curve _____.

a) IS; shifts to the right
b) IS; does not shift
c) LM; shifts to the right
d) LM; does not shift

28) A difference between the economic long run and the short run is that:

a) the classical dichotomy holds in the short run but not in the long run.
b) monetary and fiscal policy affect output only in the long run.
c) demand can affect output and employment in the short run, whereas supply is the ruling force in the long run.
d) prices and wages are sticky in the long run only

29) According to the outside readings, the reasons for the 2021-22 labor shortage are all of the following EXCEPT:

a) lower immigration
b) early retirement
c) installation of robots
d) lack of child care keeps mothers at home

30) The unemployment rate in 2022 was about 3.5 percent. If real GDP growth in 2023 were to slow from 2.0 percent per year to -2.0 percent per year, Okun's Law would predict that the 2023 unemployment rate would be

   a) 2.5 percent
   b) 3.5 percent
   c) 4.5 percent
   d) 5.5 percent

MCQ Solutions

Question	Answer
1	D
2	A
3	C
4	A
5	D
6	C
7	C
8	C
9	A
10	A
11	B
12	B
13	C
14	C
15	D
16	A
17	C
18	B
19	C
20	C
21	A
22	B
23	C
24	C
25	A
26	A
27	A
28	C
29	C
30	D

PART B: Open Questions. Answer in the space given below the question. Indicate the units when applicable and round your answer to two decimal places – unless otherwise indicated. Show all your calculations (no justification, no points). *(30 Points)*

Question 1 *(10 Points)*

Consider an economy whose aggregate production is described by the following Cobb-Douglas production function: $Y = K^{\frac{2}{3}}L^{\frac{1}{3}}$, where K are units of capital and L are number of workers employed, and Y is real output.

   a) If markets are competitive, what is the share of total real labour and capital incomes? *(2 points)*

Solution: The share for each are the respective powers, so $1/3 \approx 33.33\%$ and $2/3 \approx 66.67\%$.

   b) Derive the labour demand curve as a function of Y and w, if markets are competitive. (*3 points*)

Solution: Again, wages equal marginal productivity, so $w = (\frac{K}{L})^{2/3} \cdot \frac{1}{3} => L^d=(\frac{1}{3W})^{\frac{3}{2}} K$ or $w = \frac{Y}{L} \cdot \frac{1}{3} => L^D = \frac{Y}{w} \cdot \frac{1}{3}$ (both accepted).

   c) If markets are competitive, $K = 9$ and there is full employment, with $L = 27$, what is the equilibrium real wage? *(2 points)*

Solution: wage equals MPL in this case, hence, $w^R = (\frac{9}{27})^{\frac{2}{3}} \cdot \frac{1}{3} = 0.16$.

   d) How would employment change if a minimum wage of 0.35 were set? Only a whole number of workers can be hired. *(3 points)*

Solution: Using our previous expression, $L^D = (\frac{1}{3\cdot0.35})^{\frac{3}{2}} 9 = 8.36$. Nonetheless, firms can only hire an integer number of people so need to compare profits: $9^{\frac{2}{3}}9^{\frac{1}{3}} - 9 \cdot 0.35 = 5.85 < 5.853 \dots = 9^{\frac{2}{3}}8^{\frac{1}{3}} - 8 \cdot 0.35 => L^D = E = 8$

Question 2 *(12 Points)*

Consider an economy initially described as follows:

- $G = 600$
- $T = 200$
- $C = 500 + \frac{1}{2}(Y - T)$
- $I = 1000 - 100\,r$
- $(M/P)^d = Y - 50r$
- $M = 4000$
- $P = 4$

a) Derive the IS and LM curves. Calculate the equilibrium interest rate and income. *(4 points)*

Solution:

- IS: $Y = 500 + \frac{1}{2}(Y - T) + 1000 - 100r + 600 \Rightarrow Y = 4000 - 200r$
- LM: $M/P = (M/P)^{\wedge}d \Rightarrow Y = 1000 + 50r$
- Combining both you find r = 12 and Y = 1600

b) If there is a fall in investment prospects so that the investment equation changes to I = $750 - 100r$, how does equilibrium output and interest rate change? *(2 points)*

Solution: Recompute IS so that IS: Y = 3500 - 200r. Combining with the LM from a), we have that r = 10 and Y = 1500 => $\Delta r = -2, \Delta Y = -100$.

c) Suppose that investment does not depend on the interest rate now, so that it is fixed at 1000. What will be the fiscal multiplier ($\frac{\Delta Y}{\Delta G}$ all else equal) in this economy? *(2 points)*

Solution: $\frac{\partial Y}{\partial G} = \frac{1}{1-MPC} = 2$

d) Suppose that investment behavior goes back to normal so that $I = 1000 - 100\,r$. What is the fiscal multiplier in this economy ($\frac{\Delta Y}{\Delta G}$ all else equal)? If you cannot do it through algebra, just replace a new value for G and compute the ratio $\frac{\Delta Y}{\Delta G}$. *(4 points)*

Solution: First we must determine the equilibrium r, then Y as a function of G to get the coefficient of Y with respect to G, so that:

IS: $Y = 2800 + 2G - 200r$

LM: $Y = 1000 + 50r$

Combining, $r = \frac{1800}{250} + \frac{2}{250}G \Rightarrow Y = 2800 + 2G - 200 \cdot 7.2 - 200 \cdot \frac{2}{250}G \Rightarrow \frac{dY}{dG} = \frac{500-400}{250} = \frac{2}{5}$.

Question 3 *(8 Points)*

Following the notation introduced in class, consider an economy described as follows:

- $Y = 2000$
- $G = 500$
- $T = 500$
- $C = 1000 + \frac{1}{5}(Y - T)$
- $I = 100 - 20\,r$
- $NX = 240 - 25 \cdot \mathcal{E}$
- $r = r^* = 2$

a) Solve for private saving, public saving, national saving, investment, the trade balance, and the equilibrium exchange rate. *(4 points)*

Solution:
- Private S = Y - C - T = 2000 - 1000 - ⅕*2000 + ⅕*500 - 500 = 200
- Public S = 0
- National S = 200
- I = 60
- NX = 2000 - 1000 - ⅕*2000 + ⅕*500 - 60 - 500 = NS – I = 200 – 60 = 140
- $\mathcal{E} = 4$

b) Suppose that the interest rate remains at 2 percent but now G decreases to 450 and T decreases to 250? How does your answer to a) change? *Hint: to answer this question you don't really need to recompute everything... (4 points)*

Solution: Without computing, we know that consumption increases by 50 due to the marginal propensity to consume which compensates the decrease in public spending, hence, output remains the same. Private savings increase by 200 which is the amount of the government deficit (public saving is the inverse, -200). National savings do not change and hence, $\mathcal{E}$ and NX do not need to change. r is determined by r*.

- Private S = Y - C - T = 2000 - 1000 - ⅕*2000 + ⅕*250 - 250 = 400
- Public S = -200
- National S = 200
- I = 60
- NX = 2000 - 1000 - ⅕*2000 + ⅕*500 - 60 - 500 = 140
- $\mathcal{E} = 4$