First Midterm Exam

Fall 2018 Econ 180-266

Closed Book.
Calculators OK.
Time Allowed: 1 Hour 15 minutes
All Questions Carry Equal Marks

Section A: True or False

3 points for each correct answer; -3 points for each incorrect answer; 0 points for questions left unanswered. Total score on section A cannot be negative.

Please say if each of these statements is true or false.

1. The Federal Deposit Insurance Commission insures credit union accounts.
2. Settlement of Treasury bills is two business days after the date of the transaction.
3. Prior to 1933, the Federal Reserve had to hold gold equal to at least 40 percent of the value of the notes that they issued.
4. The *when issued* market is a forward market where two parties agree today to trade a security that has not yet been issued.
5. The LIBOR rate is a survey rate, not based on actual transactions.

Section B: Multiple Choice.

4 points for each correct answer; -1 points for each incorrect answer; 0 points for questions left unanswered. Total score on section B cannot be negative.

1. Under a fractional reserve banking system, banks are required to:
A. Keep part of their demand deposits as reserves
B. Expand the money supply when requested by the central bank
C. Insure their deposits against losses and bank runs
D. Pay a fraction of their interest income in taxes
E. Charge the same interest rate on all their loans

2. Which alternative interest rate is favored by the US Alternative Reference Rates Committee after LIBOR is phased out?
A. The three-month repo rate.
B. The Eurodollar interest rate.
C. The federal funds rate.
D. The overnight repo rate.
E. The three month Treasury bill rate.

3. Which of the following describes the Z spread discussed in class?
A. The difference between the yield of on-the-run and off-the-run Treasuries.
B. The difference between the yield of Treasury bills and comparable maturity coupon securities.
C. The difference between repo and Eurodollar interest rates.
D. The difference between ten-year and three-month interest rates.
E. The difference between commercial paper and Treasury bill yields.

4. Which is the present format of US Treasury auctions?
A. Descending price open outcry.
B. Ascending price open outcry.
C. Reserve auction.
D. Single price sealed bid.
E. Multiple price sealed bid.

5. If a bank has $100 million in US Treasury securities and no other assets, what is it's risk-weighted capital under the Basel 1 standardized method?
A. $0.
B. $7 million.
C. $20 million.
D. $50 million.
E. $100 million.

6. Which of the following statements is true.
A. On a bank's balance sheet, demand deposits are assets and loans are liabilities.
B. On a bank's balance sheet, demand deposits are assets and reserves are liabilities.
C. On a bank's balance sheet, demand deposits are assets and cash deposits are liabilities.
D. On a bank's balance sheet, loans are assets and reserves are liabilities.
E. On a bank's balance sheet, loans are assets and deposits are liabilities.

7. The term *moral hazard*, as it is applied to the Federal Deposit Insurance Corporation that insures bank deposits, means that:
A. insuring bank deposits is inherently risky and hazardous because of bank robberies.
B. banks may be inclined to make riskier loans because deposits are insured.
C. banks will be inclined to make loans to individuals with little prospect of repaying them so that the banks can seize their assets.
D. the risk of bank failures is reduced.
E. the risk of bank failures has been shifted from the United States to our major trading partners like Japan.

8. Which of the following is the discount rate:
A. The interest rate that the Federal Reserve charges banks for emergency uncollateralized loans.
B. The interest rate that the Federal Reserve charges banks for emergency collateralized loans.
C. The interest rate that the Federal Reserve charges government sponsored enterprises for emergency uncollateralized loans.
D. The interest rate that the Federal Reserve charges government sponsored enterprises for emergency collateralized loans.
E. The interest rate that banks lend to the largest corporate borrowers.

9. Which of the following statements concerning the Office of the Comptroller of the Currency is correct:
A. It was set up in 1790 to print US currency.
B. It was set up during the Civil War to regulate national banks.
C. It was set up during the 1930s to manage the transition away from the gold standard.
D. It was set up by the Bretton Woods agreement to manage the postwar system of exchange rates.
E. It was set up by the Dodd Frank act for implementing the Basel accord.

10. What is the current approximate level of ten-year Treasury yields?
A. 1.1 percent.
B. 1.9 percent.
C. 3.1 percent.
D. 3.9 percent.
E. 5.5 percent.

Section C: Other questions

1. (10 points). What is the present value of a project which pays $10 at the end of each of the next four years and $110 at the end of the fifth year, with a discount rate of 10 percent per year?

2. (15 points) Consider a Diamond-Dybvig model. There are 3 periods and 100 consumers. They can consume at time 1 getting c_1 or at time 2, getting c_2. 50 of the consumers have utility $1-\frac{1}{c_1}$. 50 have utility $1-\frac{1}{c_2}$. At the start, they don't know which type they are and so their utility function at time zero is:

$$\frac{1}{2}(1-\frac{1}{c_1})+\frac{1}{2}(1-\frac{1}{c_2})$$

Each consumer has $1 at time zero. There are 100 projects that each cost $1 at time 0, is worth $1 at time 1 or $2.25 at time 2. The bank offers to take a deposit of $1 that is worth $1.20 at time 1 and $1.70 at time 2.
(a) What is the utility at time zero of directly investing in a project?
(b) What is the utility at time zero of investing in the bank deposit?
(c) If only 50 consumers demand their money at time 1 and all get paid in full, and the other 50 demand their money at time 2, how much of a profit will the bank have left over at time 2?

3. (10 pts) You are supposed to deliver Treasury securities worth $10,000,000 on Thursday, but fail to do so. Instead you deliver them the next day (Friday). The federal funds rate is 2.25%. Under current market practices, what penalty will you owe? (Please give a dollar amount).

4 (10 points). You buy a Treasury bill (face value $10,000) at an interest rate quoted on the standard discount basis of 2 percent, with a maturity of 180 days. What is the dollar amount that you must pay for this bill?

Solutions

Section A.
1. False.
2. False.
3. True.
4. True.
5. True.

Section B.
1. A.
2. D.
3. B.
4. D.
5. A.
6. E.
7. B.
8. B.
9. B.
10. C.

Section C.
1. $100.
2. (a) $=\frac{1}{2}(1-\frac{1}{2.25})=\frac{5}{18}=0.2777$

(b) 0.2892

(c) The bank needs to sell 60 projects at time 1 to pay $1.20 to each of 50 investors. The remaining 40 projects can be held to time 2 and are worth $2.25 each for a total of $90. The 50 remaining investors get $1.70 each, for $85 total. The bank is left with a profit of $5.

5 points per component.

3. The penalty is

$$(0.03-0.0225)*10,000,000*\frac{1}{360}=\$208.33$$

5 points if gave the correct answer but failed to divide by 360.

4. This solves the equation

$$\frac{10000-P}{10000}*\frac{360}{180}=0.02$$

Solving this gives P=$9,900.

5 points if used an interest rate on a bill but not using the discount basis convention. 0 points for treating a bill as a coupon security.