MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Federal funds are
   A) funds raised by the federal government in the bond market.
   B) loans made by banks to the Federal Reserve System.
   C) loans made by banks to each other.
   D) loans made by the Federal Reserve System to banks.
   E) none of the above.

2) Bonus question: The Economist article "Commerical banks after Enron" raises following question
   A) Shall the law strictly prohibit audit firms to provide other client services in order to rule out any conflicts of interest?
   B) Should Commercial banks be restricted to lend only to smaller firms?
   C) Should Commercial banks be prohibited from buying stocks of American corporations?
   D) Was it wrong to scrap the laws that kept commercial and investment banking apart?

3) Which of the following statements about financial markets and securities are true?
   A) A corporation acquires new funds only when its securities are first sold in the primary market.
   B) Most common stocks are traded over-the-counter, although the largest corporations usually have their shares traded at organized stock exchanges such as the New York Stock Exchange.
   C) Money market securities are usually more widely traded than longer-term securities and so tend to be more liquid.
   D) All of the above are true.
   E) Only (a) and (b) of the above are true.
4) Which of the following statements about the characteristics of debt and equity are true?
   A) Debt is a claim on the issuer’s assets, but equity is a claim on the issuer’s income.
   B) They can both be short-term financial instruments.
   C) They can both be long-term financial instruments.
   D) Both (a) and (b) of the above.
   E) Both (a) and (c) of the above.

5) In financial markets, lenders typically have inferior information about potential returns and risks associated with any investment project. This difference in information is called
   A) comparative informational disadvantage.
   B) comparative informational advantage.
   C) variant information.
   D) asymmetric information.
   E) all of the above

6) Money is
   A) frequently--but incorrectly--used synonymously with wealth.
   B) anything that is generally accepted in payment for goods and services or in the repayment of debt.
   C) currency, demand deposits, and other items used to make purchases.
   D) all of the above.
   E) only (a) and (c) of the above.

7) Which of the following statements accurately describes the three different measures of the money supply—M1, M2, and M3?
   A) Initial estimates of the money supply are not a reliable guide to what is happening to the money supply in the short run.
   B) M1 is the narrowest measure.
   C) The three measures do not move together, so they cannot be used interchangeably by policymakers.
   D) All of the above.
   E) Only (a) and (b) of the above.

8) Which of the following is most likely to result from a stronger dollar?
   A) U.S. goods exported abroad will cost more in foreign countries, and so foreigners will buy fewer of them.
   B) U.S. goods exported abroad will cost more in foreign countries and so foreigners will buy more of them.
   C) Americans will purchase fewer foreign goods.
   D) U.S. goods exported abroad will cost less in foreign countries, and so foreigners will buy more of them.
9) Compared to interest rates on long-term U.S. government bonds, interest rates on _____ fluctuate more and are lower on average.
   A) low-quality corporate bonds
   B) medium-quality corporate bonds
   C) high-quality corporate bonds
   D) three-month Treasury bills
   E) none of the above

10) Which of the following $1,000 face-value securities has the lowest yield to maturity?
    A) A 5 percent coupon bond selling for $1,000
    B) A 15 percent coupon bond selling for $1,000
    C) A 10 percent coupon bond selling for $1,000
    D) A 15 percent coupon bond selling for $900

11) Financial markets improve economic welfare because
    A) they allow funds to move from those without productive investment opportunities to those who have such opportunities.
    B) they allow consumers to time their purchase better.
    C) they weed out inefficient firms.
    D) they do each of the above.
    E) they do (a) and (b) of the above.

12) If there are three goods in a barter economy, one needs to know three prices in order to exchange one good for another. If, however, there are ten goods in a barter economy, then one needs to know _____ prices in order to exchange one good for another.
    A) 10   B) 45   C) 15   D) 30

13) Changes in stock prices
    A) affect firms' decisions to sell stock to finance investment spending.
    B) affect people's wealth and their willingness to spend
    C) are characterized by considerable fluctuations.
    D) all of the above.
    E) only (a) and (b) of the above.
14) Which of the following sequences accurately describes the evolution of the payments system?
   A) Barter, coins made of precious metals, paper currency, checks, electronic funds transfers.
   B) Barter, coins made of precious metals, checks, paper currency, electronic funds transfers.
   C) Barter, checks, paper currency, electronic funds transfers.
   D) Barter, checks, paper currency, coins made of precious metals, electronic funds transfers.

15) If you expect the inflation rate to be 15 percent next year and a one-year bond has a yield to maturity of 7 percent, then the real interest rate on this bond is
   A) 22 percent.
   B) −15 percent.
   C) 7 percent.
   D) −8 percent.
   E) none of the above.

16) Which of the following are generally true of all bonds?
   A) A rise in interest rates is associated with a fall in bond prices, resulting in capital losses on bonds whose term to maturities are longer than the holding period.
   B) The only bond whose return equals the initial yield to maturity is one whose time to maturity is the same as the holding period.
   C) The longer a bond’s maturity, the smaller is the size of the price change associated with an interest rate change.
   D) All of the above are true.
   E) Only (a) and (b) of the above are true.

17) That depositors earn interest on checking and savings accounts, and yet withdraw their funds whenever necessary is possible because
   A) financial intermediaries earn such large profits.
   B) financial intermediaries hold highly diversified asset portfolios.
   C) financial intermediaries lower transaction costs.
   D) government regulations mandate this policy.
18. You have got some money to invest. There are only two investment possibilities: (a) a zero coupon bond issued by Apple (A) with a face value of $605, and (b) 10% coupon bond offered by Big5 (B) with a face value of $500. Both bonds mature exactly in two years from now. Assume that there is no future uncertainty.

(a) Bond A is priced at $500. What is its yield to maturity? Show your work.

(b) Bond B is priced at $510. Will you prefer buying A to B? Why or why not? Show your work.
19. You want to buy a used car (no offense meant, perhaps you already have a brand-new BMW!). You know that the market is full of ‘lemons’. Particularly, there are 50% sellers with good cars who would sell at $4000. On the other hand, the rest 50% are ‘lemons’ whose owners would sell at $2000. Owners know their cars’ quality but you have no idea. Please note that if a higher price prevails in the market, ‘lemon’ owners would certainly claim their cars to be a good one.

(a) As a risk-neutral person (one who is willing to pay the expected value) how much would you pay for a car without knowing its quality?
(b) Can you think of an equilibrium price where the good-car owners can also sell their cars? What car you end up buying? At what price?
(c) What is this kind of asymmetric information problem called?
(d) Give an example of a moral hazard problem? How is it different from the problem faced in the used car market?
Consider two stocks: Amazon.com (A) and Barnes&Noble (B). Suppose there are two states of nature 1 and 2. In state 1 people prefer to buy books online only, in state 2 they would rather visit a brick-and-mortar shop. Both of these states occur with equal probability (0.5). The shares are known to yield following returns:

<table>
<thead>
<tr>
<th>Company</th>
<th>State 1</th>
<th>State 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.15</td>
<td>0.05</td>
</tr>
<tr>
<td>B</td>
<td>0.05</td>
<td>0.15</td>
</tr>
</tbody>
</table>

b) You are a risk-averse person. Further, suppose you are forbidden (by some crazy law!) to own both stocks simultaneously. Which of these two stocks will you prefer? Why? Suppose there is another option – buying shares in Compaq (C), which yields an expected return of 0.1 with a standard deviation of 0.02. Will you prefer buying C to buying A or B? Why or why not? Show your work.

c) Now, suppose you can buy an equally weighted portfolio of A and B. Will you still prefer C? Why or why not? Show your work.
1) Answer: C
2) Answer: D
3) Answer: D
4) Answer: C
5) Answer: D
6) Answer: D
7) Answer: D
8) Answer: A
9) Answer: A
10) Answer: A
11) Answer: E
12) Answer: B
13) Answer: D
14) Answer: A
15) Answer: D
16) Answer: E
17) Answer: C
Solutions: 18. (a) (3 points)
Pay expected value
\[ 0.5 \times 6000 + 0.5 \times 4000 = 5000 \]

(b) (3 points)
But good-car owners will not sell at $5000. Only ‘lemons’ will be sold in the market at $4000.

(c) (3 points)
Adverse Selection.

(d) (3 points)
Fire insurance - after buying insurance the owner may not take adequate precautions. Moral hazard is a problem that occurs after a transaction.

19. (a) (5 points)
\[ P = \frac{FV}{(1 + i)^n} \]
where \( P \) is the price, \( FV \) is face value, and \( n \) is number of years to maturity.
Hence
\[ 5000 = \frac{6050}{(1 + i)^2} \implies i = 0.1 \]

(b) (7 points)
Any one of the following arguments/calculations would have been fine
- A 5000 face value, 10% coupon bond will yield 10% YTM if the price is 5000. Since the price is 5200, it means that yield is smaller than 10%. Hence prefer A, which gives 10% as in (a).
- Or, use the YTM as obtained in (a) to calculate the present value of B
\[ \frac{500}{(1 + 0.1)} + \frac{500}{(1 + 0.1)^2} + \frac{5000}{(1 + 0.1)^2} = 5000 \]
The present value is only $5000 at a YTM of 10%. The price is $5200, which means that actual YTM would be less than 10%. Hence prefer A, which gives 10% as in (a).
- Since
\[ P = \frac{C}{(1 + i)} + \ldots + \frac{C}{(1 + i)^n} + \frac{FV}{(1 + i)^n} \]
Solving for
\[ 5200 = \frac{500}{(1 + i)} + \frac{500}{(1 + i)^2} + \frac{5000}{(1 + i)^2} \]
yields \( i < 10\% \). Hence, prefer A, which gives 10% as in (a).

20. (b) (typo should have been (a)) (7 points)
First, expected returns from A and B

\[ E(R^A) = 0.5 \times 0.25 + 0.5 \times 0.05 = 0.15 \]
\[ E(R^B) = 0.5 \times 0.05 + 0.5 \times 0.25 = 0.15 \]

Then, standard deviations

\[ \sigma^A = \sqrt{0.5(0.1)^2 + 0.5(-0.1)^2} = 0.1 \]
\[ \sigma^B = \sqrt{0.5(-0.1)^2 + 0.5(0.1)^2} = 0.1 \]

Both have same expected returns and standard deviations. No preference - one would be indifferent between owning either A or B. But C has a smaller standard deviation (0.05 < 0.1) although expected returns are same. Prefer C because it is less risky.

(c) (typo - should have been (b)) (5 points)
First, compute returns of the portfolio, with weights of 0.5 on each.

<table>
<thead>
<tr>
<th>State</th>
<th>( R^w )</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R^w )</td>
<td>0.5 \times 0.25 + 0.5 \times 0.05</td>
<td>0.15</td>
<td>0.5 \times 0.05 + 0.5 \times 0.25</td>
</tr>
</tbody>
</table>

Then expected return

\[ E(R^w) = 0.5 \times 0.15 + 0.5 \times 0.15 = 0.15 \]

Then, standard deviation

\[ \sigma^w = \sqrt{0.5(0)^2 + 0.5(0)^2} = 0 \]

The risk is completely diversified - the return is certain. Since expected return is same, prefer this portfolio to C.