**Mock Midterm**

**Formulas:**

Annuity: . Perpetuity: . Growth perpetuity: .

Summation of Geometric Sequence:

Risk of a portfolio:

**Multiple Choice**

1. When a company is liquidated, which of the following investors has the top priority in claiming the assets over the other two types?

(A) Common stock holders

(B) Preferred stock holders

(C) Bond holders

C

2. Ant Financial wants to raise capital by issuing stocks. CITIC Securities will take charge of the issuance by matching individual and institutional investors and Ant Financial. CITIC Securities is playing the role of an \_\_\_\_\_\_\_\_\_\_\_\_

(A) Investing sector

(B) Savings sector

(C) Broker

(D) Financial intermediary

C

3. Standard & Poor’s has assigned an AAA credit rating 信用评级to Corporation AAA, and it has assigned a BBB credit Rating to Corporation BBB. Holding everything else equal, Corporation AAA has \_\_\_\_\_\_\_ default risk than Corporation BBB. Thus, bond investors will require \_\_\_\_\_\_\_ expected return on their investment in Corporation AAA.

(A) Higher, Higher

(B) Higher, Lower

(C) Lower, Higher

(D) Lower, Lower

D

4. Which of the following is FALSE?

(A) Holding everything else equal, the price of a long-term bond is more sensitive to changes in the interest rate than the price of a short-term bond is

(B) Holding everything else equal, the price of a stock with a higher required rate of return should be higher than the price of a stock with a lower required rate of return

(C) When a corporation decides to pay out dividends, preferred stock holders take priority over common stock holders

(D) Holding everything else equal, the price sensitivity of a zero-coupon bond is higher than the price-sensitivity of an annual-coupon paying bond when there is a change in the interest rate

B

5. Which of the following is an example of unsystematic risk?

(A) A sudden cut in the interest rate

(B) A pandemic

(C) A retail store has been robbed

(D) An increase in the oil price

C

6**.** You want to make stock investments in WeMade Inc, which is a firm that produces online games, has 2 million common stocks outstanding, and reported 10 million dollars of earnings this year. As you would like to use the relative multiple method to find what should be the stock price of the firm, you came up with the following information after doing some research:

|  |  |
| --- | --- |
|  | Price-to-Earnings ratio |
| Online Game Industry | 2 |
| Food Industry | 0.5 |
| Car Industry | 4 |

What should be the stock price of WeMade?

(A) $2.5/share

(B) $5/share

(C) $10/share

(D) $20/share

C

7. Ms. Picture is a chartist. She believes that she has found an amazing trading strategy to make enormous returns, using past price patterns; she thinks that once the past prices indicate a W-shape, the future price would shoot up. Unfortunately, her trading strategy is an epic failure. This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_

(A) Weak form efficiency

(B) Semi-strong form efficiency

(C) Strong form efficiency

A

8. The price of a 10-year coupon bond that pays coupons at the rate of 5% annually and has a face value of $1000 has a current price of 1000. What is the yield-to-maturity of the bond?

(A) 4.5%

(B) 5%

(C) 5.5%

(D) 6%

B This is a par bond.

9. Since Charles is a good boy, his mother plans to give him pocket money three times:  
$100 today, $100 a year from today, $100 2 years from today. If the interest rate is equal to 10% per year, which of the following lump-sum amount today is equivalent to receiving the three payments in the future?

(A) $248.69

(B) $273.55

(C) $285.11

(D) $300

B

10. Stock X has a beta of 0.4 and Stock Y has a beta of 0.8, and these two stocks have a perfectly positive correlation. The excess return on the market portfolio and the risk-free rate are some positive numbers. You want to create a portfolio by putting an equal weight on each of the stocks. Which of the following are TRUE?

I. The expected return on Stock X is twice the expected return on Stock Y.

II. The beta of the portfolio is 1.2.

III. You can have a better risk-return profile when investing in the portfolio rather than holding an individual Stock X or Y.

(A) I

(B) I and II

(C) III

(D) None of the above

III要用Sharpe ratio算

11. You just performed a security characteristic line analysis on the Apple stock by regressing the excess Apple stock returns over the past 1 year at the daily frequency against the excess S&P 500 returns over the same period at daily frequency. Here is the result from the Excel regression.

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Coefficients* | *Standard Error* | *t Stat* |
| Intercept | 0.04448 | 0.01592256 | 2.793520634 |
| X Variable 1 | 1.33142 | 0.349038593 | 3.814535199 |

Which of the following are true?

I. On average, when S&P 500’s excess return goes up by 1 percent, the Apple stock’s excess return will go up by more than 1%.

II. Whenever S&P 500’s excess return goes up by 1 percent, the Apple stock’s excess return will go up by more than 1%.

III. Capital Asset Pricing Model holds true in this case.

(A) I

(B) I and II

(C) I and III

(D) I, II, and III

12. You have just bought a 5 year zero-coupon bond which has a YTM of 10% and a face value of $1000. 15 seconds after you purchased the bond, the YTM changes to 9%. What is the holding period return over this 15-second horizon?

(A) 0%

(B) 4.67%

(C) -4.46%

(D) 5.21%

B

13. Which of the following is NOT true?

(A) If the Korean government is considered to have more default risk than the U.S. government, then investors will demand a higher expected return on Korean government bonds than they would demand on U.S. government bonds

(B) If the coupon rate on a bond is greater than the market interest rate, then the bond is being sold at premium

(C) When the market interest rate suddenly drops, the price of a bond tends to increase

(D) If you intend to sell the stocks you have been holding for one year but you find it difficult to find investors in the market who will buy your stocks, then your stocks involve illiquidity risk

14. The market’s nominal annual required rate of return (also called as market prevailing yield or nominal yield-to-maturity) for a bond is currently 8%. The maturity of the bond is 10 years, the coupon rate (paid semi-annually) is 4%, and the face value is $1000. What is the price of the bond?

(A) $516

(B) $728

(C) $1030

(D) $1118

**B**

**Free Response**

1. You will make three monthly payments of $100 at the end of each month to purchase a phone. The annual percentage rate is 3%.

(A) What is the present value of the payments?

注意rate要变为每月的

(B) Compute the principal payment in the last month.

2. On March 8, 2022, Company XYZ issued 1 million of bonds whose face value is $1000, has a maturity of 11 years, and pays coupons annually at the coupon rate of 10%. At the time of issuance, the yield-to-maturity (YTM) was 10%. On March 8, 2023, Company XYZ just paid coupons, and YTM on that date is 9%.

(A) On March 8, 2022, you bought one of the bonds that were issued by Company XYZ. How much did you pay for the bond?

(B) What is the price of the bond on March 8, 2023?

(C) What is the holding period return over the one year horizon (from March 8, 2022 to March 8, 2023)?

3. The expected returns and standard deviation of returns for two securities are as follows:

Security Z Security Y

Expected Return 15% 35%

Standard Deviation 20% 40%

The correlation between the returns is + .1

(A) Calculate the expected return and standard deviation for the following portfolios:

i. all in Z

ii. .75 in Z and .25 in Y

iii. .5 in Z and .5 in Y

iv. .25 in Z and .75 in Y

v. all in Y

(B) Draw the graph of the investment opportunity set, where Y-axis is the expected return of the portfolios and X-axis is the standard deviation of the portfolios from Part (A).

4. Company ABC’s stock has a beta of 2 and a standard deviation of 40%. The market portfolio has an expected return of 1.5% and standard deviation of 10%. The risk-free rate is 1%. Company ABC has just made a dividend payment of $1/share. The dividend will go up by 10% every year over the next two years, and then it will go up by 1% per year thereafter.

(A) Find the correlation between the stock return and the market portfolio return

(B) Find the expected return on this stock

(C) Find the Sharpe ratio of a portfolio that puts 100% weight on this stock and 0% weight on the risk-free asset

(D) What should be the price of the stock?

5. Fill in the following blanks, given the following information:

Total asset turnover ratio is 3.6  
Gross profit margin is 10%.  
Average collection period is 36 days  
Inventory turnover ratio is 32.4  
Acid-test ratio is 2.3

Assume that there are 360 days in a year and all sales were made on credit.

|  |  |  |  |
| --- | --- | --- | --- |
| Cash |  | Accounts Payables | 20 |
| Accounts Receivables |  | Long-term Debt | 20 |
| Inventory |  | Common Stock |  |
| Plant and Equipment |  | Retained Earnings | 40 |
| Total Assets | 100 | Total Debt and Shareholders' Equity |  |