Part I. Multiple-Choice Questions (68%): Please read each question carefully before reading the answer options. Be aware that some questions *may* have **more than one** right answer. When you have a clear idea of the question, find your answer and write your selection on the answer sheet, which should look like below

1. B
2. C, D
3. E

1. You have an investment opportunity in Germany that requires an investment of $250,000 today and will produce a cash flow of €208,650 in one year with no risk. Suppose the risk-free rate of interest in Germany is 7% and the current competitive exchange rate is €0.78 to $1.00. What is the NPV of this project? Would you take the project?
   A) NPV = 0; No
   B) NPV = 2,358; No
   C) NPV = 2,358; Yes
   D) NPV = 13,650; Yes
   E) NPV = 13,650; No

2. Which of the following statements is/are false?
   A) An investor's preferences will determine only how much to invest in the tangent or efficient portfolio versus the risk-free investment.
   B) Only aggressive investors will choose to hold the portfolio of risky assets, the tangent or efficient portfolio.
   C) Aggressive investors will invest more in the tangent portfolio choosing a portfolio that is near the tangent portfolio or even beyond it by buying stocks on margin.
   D) The Sharpe ratio will increase for a given increase in volatility if the portfolio tells us how much our expected return.
   E) If a security's expected return exceeds its required return given our current portfolio, then we can improve the performance of our portfolio by adding more of the security.

3. Suppose a risky security pays an average cash flow of $100 in one year. The risk-free rate is 5%, and the expected return on the market index is 13%. If the returns on this security are high when the economy is strong and low when the economy is weak, but the returns vary by only half as much as the market index, then the price for this risky security is closest to:

A) $88
B) $92
C) $93
D) $95
E) $85

4. Which of the following statements is/are false?
   A) Because the coupon bond provides cash flows at different points in time, the yield to maturity of a coupon bond is the simple average of the yields of the zero-coupon bonds of equal and shorter maturities.
   B) The sensitivity of a bond's price changes in interest rates is the bond's duration.
   C) Bonds with higher coupon rates are more sensitive to interest rate changes.
   D) Shorter maturity zero coupon bonds are less sensitive to changes in interest rates than are longer-term zero coupon bonds.
   E) As the coupon increases, earlier cash flows become relatively less important than later cash flows in the calculation of the present value.

5. When you purchased your house, you took out a 30-year annual-payment mortgage with an interest rate of 6% per year to purchase a house. The annual payment on the mortgage is $1200. You have just made a payment and have now decided to pay the mortgage off by repaying the outstanding balance. What is the payoff amount if you have lived in the house for 12 years and you decide to pay off the mortgage immediately *before* the twelfth payment is due?
   A) $13,390
   B) $12,993
   C) $14,193
   D) $8,832
   E) $12,573

6. Which of the following statements is/are false?
   A) The Capital Asset Pricing Model (CAPM) allows corporate executives to identify the efficient portfolio (of risky assets) by using knowledge of the expected return of each security.
   B) A portfolio's risk premium and volatility are determined by the fraction that is invested in the market.
   C) The risk premium of a security is equal to the market risk premium (the amount by which the market's expected return exceeds the risk-free rate), divided by the amount of market risk present in the security's returns measured by its beta with the market.

D) A security with a negative beta has a negative correlation with the market, which means that this security tend to perform well when the rest of the market is doing poorly.

E) By holding a negative beta security, an investor can reduce the overall market risk of her portfolio.

7. Which of the following statements is/are false?

A) One useful consequence of the Law of One Price is that when evaluating costs and benefits to compute a net present value, we can use any competitive price to determine a cash value, without checking the price in all possible markets.

B) If equivalent goods or securities trade simultaneously in different competitive markets, then they will trade for the same price in both markets.

C) Financial transactions are not sources of value, but merely serve to adjust the timing and risk of the cash flows to best suit the needs of the firm or its investors.

D) We cannot separate a firm's investment decision from the decision of how to finance the investment.

E) An important property of the Law of One Price is that it holds even in markets where arbitrage is not possible.

8. Two years ago you purchased a new SUV. You financed your SUV for 60 months (with payments made at the end of the month) with a loan at 5.9% APR. You monthly payments are $617.16 and you have just made your 24th monthly payment on your SUV. Assuming that you have made all of the first 24 payments on time, then how much interest have you paid over the first two years of your loan?

A) $3,129

B) $11,683

C) $5,300

D) $2,421

E) $20,317

9. Which of the following cash flows are relevant incremental cash flows for a project that you are currently considering investing in?

A) The tax savings brought about by the projects depreciation expense.

B) The cost of a marketing survey you conducted to determine demand for the proposed project.

C) Interest payments on debt used to finance the project.

D) Research and Development expenditures you have made.

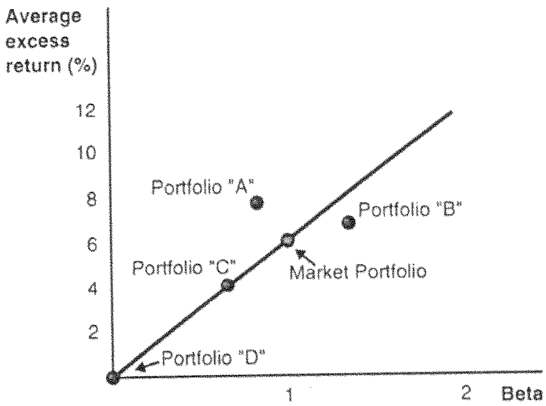
E) None of above.

10. Which of the following statements is/are false?
   A) An inverted yield curve generally signals an expected decline in future interest rates.
   B) An inverted yield curve is often interpreted as a positive forecast for economic growth.
   C) All the formulas for computing present values of annuities and perpetuities are based upon discounting all of the cash flows at the same rate.
   D) The rate of growth of your purchasing power is determined by the real interest rate.
   E) In general, the expected future spot interest rate will reflect investor's preferences toward the risk of future interest rate fluctuations.

11. Which of the following statements is/are false?
   A) An IRR will always exist for an investment opportunity.
   B) The IRR investment rule states that you should take any investment opportunity where the IRR exceeds the opportunity cost of capital.
   C) Since the IRR rule is based upon the rate at which the NPV equals zero, like the NPV decision rule, the IRR decision rule will always identify the correct investment decisions.
   D) The IRR is affected by the scale of the investment opportunity
   E) Problems can arise using the IRR method when the mutually exclusive investments have different cash flow patterns.

12. Which of the following statements is/are false?
   A) Takeovers relying on the improvement of target management are difficult to complete, and post-takeover resistance to change can be great. Thus not all inefficiently run organizations are necessarily more efficient following a takeover.
   B) Like a large portfolio, large firms bear less idiosyncratic risk, so often mergers are justified on the basis that the combined firm is less risky.
   C) Because it may be easier to measure performance accurately in a conglomerate, agency costs may be reduced and resources may be more efficiently allocated.
   D) Because most stockholders will already be holding a well-diversified portfolio, they get no further benefit from the firm diversifying through acquisition.
   E) All else being equal, larger firms, because they are more diversified, have an increased probability of bankruptcy.

13. Consider the following graph of the security market line:



Which of the following statements regarding portfolio "A" is/are correct?

A) Portfolio "A" has a positive alpha.

B) Portfolio "A" is overpriced.

C) Portfolio "A" is less risky than the market portfolio.

D) Portfolio "A" should not exist if the market portfolio is efficient.

E) Portfolio "A" has a relatively lower expected return than predicted.

14. When discounting dividends you should use?

A) the weighted average cost of capital.

B) the equity cost of capital.

C) the after tax weighted average cost of capital.

D) the before tax cost of debt.

E) the risk-free interest rate.

15. The idea that managers who perceive the firm's equity is under-priced will have a preference to fund investment using retained earnings, or debt, rather than equity is known as the

A) signaling theory of debt.

B) lemons principle.

C) pecking order hypothesis.

D) credibility principle.

E) tradeoff theory.

16. Which of the following statements is/are false?

A) We divide the capital gain by the expected future stock price to calculate the capital gain rate.
B) The law of one price implies that to value any security, we must determine the expected cash flows an investor will receive from owning it.
C) The expected total return of a stock should equal the expected return of other investments available in the market with equivalent risk.
D) The dividend yield is the expected annual dividend of a stock, divided by its expected future sale price.
E) Future dividend payments and stock prices are not known with certainty; rather these values are based on the investor's expectations at the time the stock is purchased.

17. Consider an equally weighted portfolio that contains 20 stocks. If the average volatility of these stocks is 35% and the average correlation between the stocks is .4, then the volatility of this equally weighted portfolio is closest to:
A) 0.17
B) 0.41
C) 0.14
D) 0.12
E) 0.37

18. Which of the following statements is/are false?
A) When a bond is trading at a discount, the price drop when a coupon is paid will be larger than the price increase between coupons, so the bond's discount will tend to decline as time passes.
B) As interest rates and bond yield rise, bond prices will fall.
C) Ultimately, the prices of all bonds approach the bond's face value when the bonds mature and their last coupon are paid.
D) If a coupon bond's yield to maturity exceeds its coupon rate, the present value of its cash flows at the yield to maturity will be greater than its face value.
E) The price of the bond will drop by the amount of the coupon immediately after the coupon is paid.

19. Which of the following statements is/are false?
A) The Sharpe ratio of a portfolio will increase if we sell stocks with positive alphas.
B) The market portfolio is on the SML, and according to the CAPM, since all other portfolios are inefficient they will not fall on the SML.
C) Securities that tend to move less than the market have betas below 1.

D) Beta corresponds to the slope of the best fitting line in the plot of the securities excess returns versus the market excess return.

E) The conclusion of the CAPM that investors should hold the market portfolio combined with the risk-free investment depends on the quality of an investor's information.

20. Which of the following statements is/are false?

A) We cannot use the general dividend discount model to value the stock of a firm with rapid or changing growth.

B) The dividend discount model values the stock based on a forecast of the future dividends paid to shareholders.

C) Cutting the firm's dividend to increase investment will raise the stock price if, and only if, the new investments have a positive NPV.

D) If the firm retains more earnings, it will be able to pay out less of those earnings, which means that the firm will have to reduce its dividend.

E) By repurchasing shares, the firm increases its share count, which decreases its earning and dividends on a per-share basis.

21. Which of the following statements is/are false?

A) If two stocks have the same payout and EPS growth rates as well as equivalent risk, then they should have the same P/E ratio.

B) Because capital expenditures can vary substantially from period to period, most practitioners rely on enterprise value to free cash flow multiples.

C) Valuation multiples have the advantage that they allow us to incorporate specific information about the firm's cost of capital or future growth.

D) Looking at enterprise value as a multiple of sales can be useful if it is reasonable to assume that the firms will maintain similar margins in the future.

E) Common multiples to consider are enterprise value to EBIT, EBITDA, and free cash flow.

22. Which of the following statements is/are false?

A) The realized return is the total return we earn from dividends and capital gains, expressed as a percentage of the initial stock price.

B) If the return is riskless and never deviates from its mean, the variance is equal to one.

C) Because investors are risk averse, they will demand a risk premium to hold unsystematic risk.

D) Because investors can eliminate firm-specific risk "for free" by diversifying their portfolios, they will not require a reward or risk premium for holding it.

E) Fluctuations of a stock's returns that are due to firm-specific news are common risks.

23. Which of the following statements is/are false?
   A) The portfolio that contains all shares of all stocks and securities in the market is called the efficient portfolio.
   B) A key step to measuring systematic risk is finding a portfolio that contains only unsystematic risk.
   C) The beta is the expected percentage change in the excess return of the market portfolio for a 1% change in the excess return of a security.
   D) To measure the systematic risk of a stock, we must determine how much of the variability of its return is due to systematic, market-wide risks versus diversifiable, firm specific risks.
   E) If we assume that the market portfolio (or the S&P 500) is efficient, then changes in the value of the market portfolio represent unsystematic shocks to the economy.

24. Which of the following statements is/are false?
   A) Because the risk that determines expected returns is unsystematic risk, which is measured by beta, the cost of capital for an investment is the expected return available on securities with the same beta.
   B) If the market portfolio were not efficient, investors could find strategies that would "beat the market" with higher average returns and lower risk.
   C) Efficient capital markets is a much stronger hypothesis than the CAPM.
   D) We call a portfolio that contains only unsystematic risk an efficient portfolio.
   E) Because diversification improves with the number of stocks held in a portfolio an efficient portfolio should be a large portfolio containing many different stocks.

25. Which of the following statements is/are false?
   A) A significant fraction of investors might care about aspects of their portfolios other than expected return and volatility, and so would be unwilling to hold inefficient investment portfolios.
   B) A momentum strategy is one where you buy stocks that have had low past returns and (short) sell stocks that have had high past returns.
   C) Leverage increases the risk of equity even when there is no risk that the firm will default.
   D) An investor who would like more leverage than the firm has chosen can lend and add leverage to his or her own portfolio.
   E) If the entire portfolio of investments is efficient, then just the tradeable part of the portfolio should be efficient also.

26. Which of the following statements is/are false?
   A) We can evaluate the relationship between risk and return more formally by computing the sensitivity of each security's return to the systematic risk of the economy.

B) With perfect capital markets, leverage merely changes the allocation of cash flows between debt and equity, without altering the total cash flows of the firm

C) It is inappropriate to discount the cash flows of levered equity at the same discount rate that we use for unlevered equity.

D) The project's NPV represents the value to the new investors of the firm created by the project.

E) The Law of One Price implies that leverage will affect the total value of the firm under perfect capital market conditions.

27. Which of the following statements is/are false?

A) By increasing the amount paid to debt holders through interest payments, the amount of the pretax cash flows that must be paid as taxes increases.

B) The total value of the unlevered firm exceeds the value of the firm with leverage due to the present value of the tax savings from debt.

C) To determine the benefit of leverage for the value of the firm, we must compute the present value of the stream of future interest tax shields the firm will receive.

D) The firm's marginal tax rate may fluctuate due to changes in the tax code and changes in the firm's income bracket.

E) The WACC represents the cost of capital for the free cash flow generated by the firm's assets.

28. Which of the following statements is/are false?

A) The higher the firm's leverage, the more the firm exploits the tax advantage of debt, and the lower its WACC.

B) Because the firm's free cash flow is computed without considering the firm's leverage, we account for the benefit of the interest tax shield by calculating the WACC using the before tax cost of debt.

C) The amount of money an investor will pay for a security ultimately depends on the benefits the investor will receive—namely, the cash flows the investor will receive before all taxes have been paid.

D) The reduction in the WACC increases with the amount of debt financing.

E) When a firm uses debt financing, the cost of the interest it must pay is offset to some extent by the tax savings from the interest tax shield.

29. Which of the following statements is/are false?

A) Economic distress is a significant decline in the value of a firm's assets, whether or not it experiences financial distress due to leverage.

B) When a corporation becomes financially distressed, outside professionals, such as legal and accounting experts, consultants, appraisers, auctioneers, and others with experience selling distressed assets, are generally hired.

C) The loss of customers is likely to be large for producers of raw materials (such as sugar or aluminum), as the value of these goods, once delivered, depends on the seller's continued success.

D) The presence of financial distress costs can explain why firms choose debt levels that are too high to fully exploit the interest tax shield.

E) Most debenture issues contain clauses restricting the company from issuing new debt with equal or lower priority than existing debt.

30. Which of the following statements is/are false?

A) Whether default occurs depends on the cash flows, not on the relative values of the firm's assets and liabilities.

B) When a firm fails to make a required payment to debt holders, it is in bankruptcy.

C) Debt holders can then take legal action against the firm to collect payment by seizing the firm's assets.

D) Whether paid by the firm or its creditors, the indirect costs of bankruptcy increase the value of the assets that the firm's investors will ultimately receive.

E) Although indirect costs of bankruptcy are difficult to measure accurately, they are typically much smaller than the direct costs of bankruptcy.

31. Which of the following statements is/are false?

A) An over-investment problem occurs when shareholders have an incentive to invest in risky positive-NPV projects.

B) Agency costs represent another cost of increasing the firm's leverage that will affect the firm's optimal capital structure choice.

C) Creditors often place restrictions on the actions that the firm can take. Such restrictions are referred to as debt covenants.

D) One disadvantage of using leverage is that it does not allow the original owners of the firm to maintain their equity stake.

E) Leverage can reduce the degree of managerial entrenchment because managers are more likely to be fired when a firm faces financial distress.

32. Which of the following statements is/are false?

A) While evidence is indicative of the growing importance of share repurchases as a part of firms' payout policies, it also shows that dividends remain a key form of payouts to shareholders.
B) Long-term investors are more heavily taxed on capital gains, so they would prefer dividend payments to share repurchases.
C) Individuals in the highest tax brackets have a preference for stocks that pay high dividends, whereas tax-free investors and corporations have a preference for stocks with no or low dividends.
D) Paying out excess cash through dividends or share repurchases can boost the stock price by reducing managers' ability and temptation to waste resources.
E) Firms adjust dividends relatively infrequently, and dividends are much less volatile than earnings. This practice of maintaining relatively constant dividends is called dividend signaling.

33. Which of the following statements is/are false?
A) If the debt-equity ratio changes over time, the risk of equity–and, therefore, its cost of capital–will change as well.
B) The project's free cash flow to equity shows the expected amount of additional cash the firm will have available to pay dividends (or conduct share repurchases) each year.
C) The incremental financing of a project corresponds directly to the financing that is directly tied to the project.
D) Sometimes management may believe that the securities they are issuing are priced at less than (or more than) their true value. If so, the NPV of the transaction, which is the difference between the actual money raised and the true value of the securities sold, should not be included in the value of the project.
E) In the event of default, the assets not pledged as collateral for outstanding bonds cannot be used to pay off the holders of subordinated debentures until all more senior debt has been paid off.

34. Which of the following statements is/are false?
A) When considering portfolios formed based on the market-to-book ratio, most of the portfolios plot below the security market line.
B) Portfolios with high market capitalizations will have positive alphas if the market portfolio is not efficient.
C) If the CAPM correctly computes the risk premium, investors would stop investing only when they expected the alpha of an investment strategy to be negative.
D) If the true market portfolio is efficient, but the proxy portfolio is not highly correlated with the true market portfolio, then the true market portfolio will not be efficient and stocks will have nonzero alphas.
E) An efficient portfolio need not be well diversified.

Part II. Quantitative Questions (32%): 所有的計算題答案請以小數點後二位四捨五入為主（例如：xx.xx 或 xx.xx%）。

1. Suppose you have the following Loans / Investments:

Credit Card	14.90% APR (Monthly Compounding)
Automobile Loan	5.90% APR (Monthly Compounding)
Home Equity Loan	8.25% APR (Monthly Compounding)
Money Market Fund	5.10% EAR

If your income tax rate is 30%, then rank those loans/investments from the highest after-tax EAR to the lowest after-tax EAR?

2. You are purchasing a new home and need to borrow $325,000 from a mortgage lender. The mortgage lender quotes you a rate of 6. 5% APR for a 30-year fixed rate mortgage (with payments made at the end of each month). The mortgage lender also tells you that if you are willing to pay 1 point, they can offer you a lower rate of 6.25% APR for a 30-year fixed rate mortgage. One point is equal to 1% of the loan value. So if you take the lower rate and pay the points you will need to borrow an additional $3250 to cover points you are paying the lender. Assuming that you do not intend to prepay your mortgage (pay off your mortgage early), are you better off paying the 1 point and borrowing at 6.25% APR or just taking out the loan at 6.5% without any points?

3. Suppose that the market consists of two perfectly negatively correlated risky assets and one riskless asset. The return of the first risky asset has expectation 0.1 and standard deviation 0.1; the return of the second risky asset has expectation 0.2 and standard deviation 0.4.
   a) Construct a riskless portfolio consisting of the two risky assets alone. Specifically, in what proportions are the two risky assets held in this portfolio?
   b) If the asset market is arbitrage-free, what is the riskless rate of return?
   c) What is the slope of the Capital Market Line?

4. Suppose the stock of Good Grub, Inc., a food processing company provides a return with a standard deviation of 0.3 and a correlation with the market portfolio of 0.9. The standard deviation of the market return is 0.2. The risk-free rate of return is 4.5% and the expected return of the market portfolio is 9%.
   a) Determine Beta for the company's stock.
   b) Using CAPM, determine the required rate of return of Good Grub stockholders.
   c) Good Grubs annual dividends are predicted to be $2 per share next year. If dividends are expected to grow by 5% each year, estimate the price of Good Grub common stock.