Birla Institute of Technology & Science, Pilani
ECON F412/FIN F313 Security Analysis & Portfolio Management
May 6th, 2023, Comprehensive Examination, Time 180 Minutes Weightage 40%

PART A CLOSED BOOK

Maximum Time 45 Minutes Max Marks 30 (15% Weightage)

I Multiple Choice questions – Indicate your answer choice to each question in the Table below. No cutting is allowed. Think before writing your answer. (0.50X20=10)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

1. The _________ the variance of returns, everything else remaining constant, the _________the dispersion of expectations and the_________ the risk.
   a) Larger, greater, lower
   b) Larger, smaller, higher
   c) Larger, greater, higher
   d) Smaller, greater, lower
   e) Smaller, greater, greater

2. Which of the following is not a component of the risk premium?
   a) Business risk
   b) Financial risk
   c) Liquidity risk
   d) Exchange rate risk
   e) Unsystematic market risk

3. Which of the following is not a secondary equity market?
   a) Treasury market
   b) National exchanges
   c) Regional exchanges
   d) Over-the-counter market
   e) All of the above are secondary equity markets.

4. The purpose of calculating the covariance between two stocks is to provide a(n) ________ measure of their movement together.
   a) Absolute
   b) Relative
   c) Indexed
   d) Loglinear
   e) Squared

5. When identifying undervalued and overvalued assets, which of the following statements is false?
   a) An asset is properly valued if its estimated rate of return is equal to its required rate of return.
   b) An asset is considered overvalued if its estimated rate of return is below its required rate of return.
   c) An asset is considered undervalued if its estimated rate of return is above its required rate of return.
   d) An asset is considered overvalued if its required rate of return is below its estimated rate of return.
   e) None of the above (that is, all are true statements)

6. Which of the following is NOT a component of GDP?
    a) Investment spending
    b) Net exports
    c) Government spending
    d) Public debt
    e) Foreign Direct Investment
7. Which of the following is an example of fiscal policy?
    a) Raising the reserve requirement
    b) Lowering interest rates
    c) Increasing government spending
    d) Selling government securities
    e) None of the above
8. Which of the following is NOT one of the five forces in Porter's Five Forces model?
    a) Threat of new entrants
    b) Bargaining power of suppliers
    c) Bargaining power of customers
    d) Rivalry among existing firms
    e) All of the above are five forces in Porter's model
9. Cyclical industries are those that:
    a) Are characterized by long-term growth and stability
    b) Are heavily influenced by the business cycle
    c) Have a low level of competition and high barriers to entry
    d) Are dominated by a small number of large firms
    e) None of the above
10. Industry analysis is a tool that is used to:
    a) Determine a company's financial performance
    b) Understand the competitive environment in which a company operates
    c) Analyze a company's strengths and weaknesses
    d) Identify opportunities for growth in a company's market
    e) None of the above
11. Which of the following is NOT a limitation of industry analysis?
    a) It assumes that industries are homogeneous
    b) It is difficult to obtain industry data
    c) It may not account for changes in the macroeconomic environment
    d) It is not useful for predicting future industry trends
    e) All of the above
12. The following are classified as contrary trading rules, **except** the
    a) Odd lot short sales.
    b) Investment advisory opinions.
    c) Relative OTC volume.
    d) CBOE put/call ratio.
    e) Confidence index.
13. Measures of risk for an investment include
    a) Variance of returns and business risk
    b) Coefficient of variation of returns and financial risk
    c) Business risk and financial risk
    d) Variance of returns and coefficient of variation of returns
    e) All of the above

14. Which of the following statements is CORRECT?

a) The cash flows for an ordinary (or deferred) annuity all occur at the beginning of the periods.
b) If a series of unequal cash flows occurs at regular intervals, such as once a year, then the series is by definition an annuity.
c) The cash flows for an annuity due must all occur at the ends of the periods.
d) The cash flows for an annuity must all be equal, and they must occur at regular intervals, such as once a year or once a month.
e) If some cash flows occur at the beginning of the periods while others occur at the ends, then we have what the textbook defines as a variable annuity.

15. Ten years ago, Lucas Inc. earned Rs 0.50 per share. Its earnings this year were Rs 2.20. What was the growth rate in earnings per share (EPS) over the 10-year period?

a) 15.17%
b) 15.97%
c) 16.77%
d) 17.61%
e) 18.49%

16. Suppose you borrowed Rs 12,000 at a rate of 9.0% and must repay it in 4 equal installments at the end of each of the next 4 years. How large would your payments be?

a) Rs 3,704.02
b) Rs 3,889.23
c) Rs 4,083.69
d) Rs 4,287.87
e) Rs 4,502.26

17. Which of the following statements is CORRECT? Assume that the firm is a publicly owned corporation and is seeking to maximize shareholder wealth.

a) If a firm has a beta that is less than 1.0, say 0.9, this would suggest that the expected returns on its assets are negatively correlated with the returns on most other firms' assets.
b) If a firm's managers want to maximize the value of the stock, they should, in theory, concentrate on project risk as measured by the standard deviation of the project's expected future cash flows.
c) If a firm evaluates all projects using the same cost of capital, and the CAPM is used to help determine that cost, then its risk as measured by beta will probably decline over time.
d) Projects with above-average risk typically have higher-than-average expected returns. Therefore, to maximize a firm's intrinsic value, its managers should favor high-beta projects over those with lower betas.
e) Project A has a standard deviation of expected returns of 20%, while Project B's standard deviation is only 10%. A's returns are negatively correlated with both the firm's other assets and the returns on most stocks in the economy, while B's returns are positively correlated. Therefore, Project A is less risky to a firm and should be evaluated with a lower cost of capital.

18. Excess return portfolio performance measures

a) Adjust portfolio risk to match benchmark risk.
b) Compare portfolio returns to expected returns under CAPM.
c) Evaluate portfolio performance based on return per unit of risk.
d) Indicate historic average differential return per unit of historic variability of differential return.
e) None of the above.

19. A manager's superior returns could have occurred due to:

a) an insightful asset allocation strategy, over weighting an asset class that earned high returns.
b) investing in undervalued sectors.
c) selecting individual securities that earned above average returns.
d) Choices a and c
e) All of the above

20. When the 50-day moving average crosses the 200-day moving average from ______on _____ volume, this would be a ________signal.

a) above, low, bullish.
b) below, high, bearish.
c) below, low, bullish.
d) above, high, bullish.
e) below, high, bullish.

II Indicate for the following statement "True" or "False" in the Table below. EACH WRONG ANSWER CARRIES 50% negative weightage

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

1. The coefficient of variation is the expected return divided by the standard deviation of the expected return.
2. A decrease in the market risk premium, all other things constant, will cause the security market line to have a steeper slope.
3. A Eurobond is an international bond denominated in a currency other than that of the United States.
4. A good secondary market is important to the efficiency of the primary market.
5. Studies concerning quarterly earnings reports indicate that information in quarterly statements is of value and can provide an above-average risk-adjusted return.
6. For a two stock portfolio containing Stocks i and j, the correlation coefficient of returns (rij) is equal to the square root of the covariance (covij).
7. Under the CAPM framework, the introduction of lending and borrowing at differential rates leads to a non-linear capital market line.
8. The growth rate of dividends and profit margin are the main determinants of the P/E ratio.
9. The price of a bond can be calculated by discounting future coupons over the bonds life by the yield to maturity.
10. The economy and the stock market have a strong, consistent relationship, but the stock market generally turns before the economy does.
11. The earning multiplier will be 2.8, if the dividend payout ratio for the aggregate market is 50 percent, the required rate of return is 16 percent, and the expected growth rate for dividends is 6 percent.
12. Risk measures for different industries remain fairly constant over time so historical risk analysis can be useful when estimating future risk.
13. Low current prices relative to costs in an industry indicate low barriers to entry.
14. In the present value of operating free cash flow technique, the firm's operating free cash flow to the firm is discounted at the firm's weighted average cost of capital (WACC).
15. The cumulative number of shares that have been sold short by investors and not covered is called short interest.
16. At a resistance level, the technician would expect an increase in the demand for a stock.
17. In the case of a bond, the only contractual factor is the amount of interest payments, since beginning and ending bond prices are determined by market forces.
18. For a given change in yield bond price volatility is inversely related to term to maturity.

19. Stock index futures are useful in providing a hedge against movements in an underlying financial asset.
20. A negative Treynor measure (negative T) for a portfolio always indicates that the portfolio would plot below the SML.

III i) A friend has some reliable information that the stock of XYZ Company is going to rise from Rs 43.00 to Rs 50.00 per share over the next year. You know that the annual return on the BSE 30 has been 11% and the 90-day T-bill rate has been yielding 5% per year over the past 10 years. If beta for XYZ is 1.5, will you purchase the stock? Justify your answer with facts. (2)

ii) You are provided with the following information about MaxCorp.

	Figures in Rs/000
Net sales	5000
Total Assets	3000
Depreciation	260
Net Income	600
Long term Debt	2000
Equity	2160
Dividends	160

a) Calculate the return on equity (ROE) (1)

b) Calculate the sustainable growth rate (1)

iii) Consider each of the following stocks, and solve for the missing element

Stock	Current Year Dividend	Expected Growth in dividend	Required Rate of Return	Value of Stock
A	Rs 1.00	3%	5%	
B		4%	6%	Rs 26.0
C	Rs 1.00		10%	Rs 21.0
D	Rs 0.75	2%		Rs 7.65

Having filled the missing elements, if all the four stocks are available in the market at Rs 20 each; which one will you invest in and why? (1+1)

iv) Assume that you purchase a 3-year \$1,000 par value bond, with an 8% coupon, and a yield of 10%. After you purchase the bond, one- year interest rates are as follow, year 1 = 10%, year 2 = 8%, year 3 = 6% (these are the reinvestment rates). Calculate the realized horizon yield if you hold the bond to maturity. Interest is paid annually. (2)

v) Suppose investor initially pays Rs 16000 towards the purchase of Rs 24000 worth stock (12 shares of Rs 2000 per share), borrowing the remaining Rs 8000 from broker. If maintenance of margin is 50%; at what price of the stock margin call will occur? (2)

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Comprehensive Examination PART B (OPEN BOOK)
Max Time 135 Minutes Max Marks 50 (25%), 6th May 2023 (FN)

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1 i) What are the key functions of Capital market? How does it contribute to growth of economy?

ii) Differentiate between Investment and Speculation based on **key factors**; giving two example of stocks under each category. (5+5)

2. i) The average market prices and dividend per share of ABCD Ltd for the last six years is given below:

Year	Average Market Price (Rs)	Dividend Per Share (Rs)
2022	68	3.0
2021	61	2.6
2020	50	2.0
2019	53	2.5
2018	45	2.0
2017	40	3.0

Calculate average rate of return for ABCD Ltd's shares between 2017 and 2022. Explain the rationale behind your answer. Also, calculate annual holding period yield between 2017 and 2022. (3+2)

ii) The returns on the equity stocks of ITC Ltd and the market portfolio for the last 11 years are given below:

Year	ITC Ltd Returns (%)	Market Returns (%)
1	15	12
2	-6	1
3	18	14
4	30	24
5	12	16
6	25	30
7	2	-3
8	20	24
9	18	15
10	24	22
11	8	12

Calculate the Beta for the stock of ITC Ltd and establish the characteristics line for the stock.

(5)

3. i) The current dividend on an equity share of XYZ Limited is Rs. 2.00. The company is expected to enjoy an above-normal growth rate of 20 per cent for a period of 6 years. Thereafter the growth rate will fall and stabilise at 10 per cent. Equity investors require a return of 15 per cent. What is the intrinsic value of the equity share of XYZ Ltd.?

ii) Mr. Agha Khan has analysed a stock for a one-year holding period. The stock is currently selling for Rs 10 but pays no dividends, and there is a 50 : 50 chance that the stock will sell for either Rs 10 or Rs 12 by year-end. What is the expected return if 250 shares are bought with 80 per cent margin? Assume cost of borrowed funds is 10% (ignore commission and taxes).

(4+4)

4i) It is said that Price by Book Value (P/BV) is a better indicator for investing in banking stocks as against Price by earning (P/E) and Price by Sales ratio (P/S). What are the key reasons that would justify it? Explain.

ii) Return on equity and Return on Capital Employed are the two prominent indicators that gets used for trading of stocks. What exactly is the difference and in what way they are related to each other. Further if you have to take a call on stocks in the telecom sector vs IT companies for investment; which one would be more relevant to apply in which industry and Why?

(5+5)

5. i) Discuss what technical analysis is, what technical analysts do, and the relationship between technical analysis, fundamental analysis, and behavioral finance. Explain with the help of specific tools and techniques and examples.

ii) You have learnt multiple performance measures such as Sharpe Ratio, Tryner Ratio, Jensen's Alpha and Modigilani and Modigilani ($M^{2)}$ for portfolio performance evaluation. Construct two portfolio X , Y and a benchmark as market portfolio by assuming the values of returns, Standard deviation, Beta etc; so that rank ordering of portfolio X and Y gives conflicting rank ordering. Having constructed such portfolio, how would you analyse and resolve the conflict to decide about the better one out of the two. Justify your answer with facts and figures.

(6+6)

All Best wishes