Birla Institute of Technology & Science, Pilani
ECON C412/FIN C313 Security Analysis & Portfolio Management
December 20, 2022 COMPREHENSIVE EXAMINATION Time 180 Minutes Weightage 35%

PART A Time 60 Minutes Marks 40

NAME__________________________________ ID No. ____________________________

(After submission of Part A (Closed Book), Students can go for attempting PART B (Open Book and class Notes))

I Multiple Choice Questions. Insert the correct answer in the Table below.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	Marks Scored in Part A:														

1. Which of the following would be inconsistent with an efficient market?
   a. Information arrives randomly and independently.
   b. Stock prices adjust rapidly to new information.
   c. Price changes are independent.
   d. Price changes are random.
   e. Price adjustments are biased.
2. In a two-stock portfolio, if the correlation coefficient between two stocks were to decrease over time, everything else remaining constant, the portfolio's risk would
   a. Decrease.
   b. Remain constant.
   c. Increase.
   d. Fluctuate positively and negatively.
   e. Be a negative value.
3. A positive relationship between expected return and expected risk is consistent with
   a. investors being risk seekers.
   b. investors being risk avoiders.
   c. investors being risk averse.
   d. all of the above.
   e. none of the above.
4. Which of the following statements about the risk-free asset is correct?
   a. The risk-free asset is defined as an asset for which there is uncertainty regarding the expected rate of return.
   b. The standard deviation of return for the risk-free asset is equal to zero.
   c. The standard deviation of return for the risk-free asset cannot be zero, since division by zero is undefined.
   d. Choices a and b.
   e. Choices a and c.
5. The ____ the number of stocks in a portfolio and the ____ the time period the ____ the portfolio beta.
   a. Larger, longer, less stable
   b. Larger, longer, more stable
   c. Larger, shorter, less stable
   d. Larger, shorter, more stable
   e. Smaller, longer, more stable
6. Which of the following is **not** a use of financial ratios?
   a. Stock valuation
   b. Assigning credit quality ratings on bonds
   c. Predicting insolvency
   d. Identification of internal corporate variables that affect a stock's systematic risk
   e. None of the above (that is, all are uses of financial ratios)
7. Which of the following statements regarding financial risk and business risk is **true**?
   a. The acceptable level of financial risk for a firm depends on its business risk.

b. A firm with a greater degree of business risk has the ability to take on more debt.
c. A firm with a greater degree of financial risk typically takes on less business risk.
d. Financial risk and business risk are both important but they are not related in any way.
e. Financial risk is more important for small firms and business risk is more important for large firms.

8. The ratio that is sometimes referred to as the earnings multiple is the:
    a. earnings-per-share ratio.
    b. dividend-yield ratio.
    c. price-earnings ratio.
    d. dividend-payment ratio.
    e. retention ratio

9. Given the following data on Reliance Industries Ltd., comment on its valuation

Current EPS = Rs 32	Expected EPS Growth rate= 13.1%
Current Market Price= Rs1800	7-year avg. P/E ratio= 27.5

    a. Overvalued
    b. Undervalued
    c. Fairly Valued
    d. Data insufficient
    e. None of the above

10. Suppose you purchase 400 shares of GAMESTOP on initial margin of 60% at $25/share. The maintenance margin is 30%. Margin call is received when the stock price falls below _______.
    a. $28.585
    b. $28.855
    c. $14.925
    d. $14.285
    e. None of the above

11. The value of a corporate bond can be derived by calculating the present value of the interest payments and the present value of the face value at the bond's
    a. Current yield.
    b. Coupon rate.
    c. Required rate of return.
    d. Effective rate.
    e. Prime rate.

12. All of the following are ways in which a firm can increase its growth rate of equity earnings without any external financing except
    a. Decreasing its dividend payments
    b. Increasing its retention ratio
    c. Increasing its return on equity (ROE)
    d. Increasing its return on assets (ROA)
    e. All of the above will increase the firm's growth rate without external financing

13. If interest rates rise due to inflation, and expected cash flows to a firm rise, then you would expect stock prices to
    a. Rise.
    b. Rise and then decline.
    c. Remain unchanged.
    d. Decline.
    e. None of the above.

14. Expected earnings per share estimates requires all of the following **except**
    a. A sales per share estimate.
    b. A GDP estimate.
    c. An aggregate operating profit margin estimate
    d. An estimate of the real risk-free rate.
    e. A tax rate estimate.

15. Which of the following is not considered a structural influence on the economy and industry?
    a. Demographics
    b. Life-styles
    c. International economics
    d. Social values
    e. Technology

16. At what stage in the industrial life cycle is there an influx of competition?
    a. Early pioneering development
    b. Rapid accelerating growth
    c. Acquisition and consolidation

d. Mature growth
e. Stabilization and market maturity

17. Which of the following statements about industry analysis is true?
    a. During any time period, rates of return of firms within industries do vary within a wide range.
    b. Aggregate market performance accurately reflects the performance of alternative industries.
    c. Risk of return for individual industries have not varied over time, so one can simply extrapolate past performance into the future.
    d. All of the above are true.
    e. None of the above are true.
18. 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.
19. A price range at which technicians would expect a substantial increase in the demand for a stock is called
    a. Demand threshold.
    b. Resistance level.
    c. Support level.
    d. Resistance limit.
    e. Technical restraint.
20. Which of the following is not an advantage of technical analysis identified by technicians?
    a. Fundamental analysis depends heavily on financial accounting statements.
    b. The majority of investors cannot consistently process new information correctly.
    c. Fundamental analysis may not time the investment properly when trading under- or over-valued securities.
    d. The majority of investors cannot process new information quickly enough.
    e. All of the above are advantages identified by technicians.
21. Which of the following characterizes forward contracts but not futures:
    a. They are customized
    b. They do not carry any default risk
    c. Their pay-offs are received on a daily basis
    d. There are more than one correct options
22. The buyer of a call option and the seller of a call option face:
    a. Unlimited risk; Unlimited risk
    b. Limited risk; Unlimited profit
    c. Unlimited profit; Unlimited risk
    d. Limited risk; Limited risk
23. The difference between long position in financial options and financial futures is *best described* by which statement:
    a. One is exchange traded and the other is not.
    b. One requires delivery of the underlying and the other does not.
    c. One carries unlimited risk and the other does not.
    d. One is priced according to the underlying and the other is not.
24. For a call option, identify the strike price that will be the cheapest on a given underlying:
    a. Rs 100. b. Rs 103. c. Rs 108. d. Rs 98

25. For a seller of a put option, which strike price carries the least likelihood of the option getting exercised:
    a. Rs 100. b. Rs 103. c. Rs 108. d. Rs 98

(0.5*25 = 12.5 Marks)

1. Between 1980 and 2000, the standard deviation of the returns for the NIKKEI and the DJIA indexes were 0.08 and 0.10, respectively, and the covariance of these index returns was 0.0007. What was the correlation coefficient between the two market indicators? (2.5)

2. Calculate the expected return for F Inc. which has a beta of 1.3 when the risk free rate is 0.06 and you expect the market return to be 0.125. (2.5)

3. Suppose Googly Inc. uses only debt and internal equity to finance its capital budget. The company estimates that its WACC is 12%. The capital structure is 75% debt and 25% internal equity. The before-tax cost of debt is 12.5 %, and the corporate tax rate is 20%. The risk-free rate is 6%, and the market risk premium is 8%. What is the company's beta? (2.5)

4. A major manufacturer is reevaluating its bonds since it is planning to issue a new bond in the current market. The firm's outstanding bond issue has 7 years remaining till maturity. The bonds were issued with an 8 percent coupon rate (paid quarterly) and a par value of $1,000. The required rate of return is 10 percent. What will be the value of these securities in one year if the required return is 6 percent? (2.5)

5. . Davenport Corporation's last dividend was $2.70 and the directors expect to maintain the historic 3 percent annual rate of growth. You plan to purchase the stock today because you feel that the growth rate will increase to 5 percent for the next three years and the stock will then reach $25 per share. How much should you be willing to pay for the stock if you feel that the 5 percent growth rate can be maintained indefinitely and you require a 17 percent return? (2.5)

6. Calculate the net advance-decline for day 5 using the trade data in the table below.

Issues

Day	Traded	Advances	Declines	Unchanged
1	32456	25698	6058	700
2	43013	24560	17210	1243
3	33124	20324	12378	422
4	32678	19867	11367	1444
5	31897	18678	12278	941

What is the implicate for the market? (2.5)

7. Prepare the pay-off diagram (of only the derivative trade) best suitable in the following situation.
A put option being used for hedging a long position in the underlying asset. The strike price of the put option is Rs 70, the price at which the underlying asset is purchased in the spot market is Rs 73. Price of the put option is Rs 5, expiry is 1-month from today. **Label all points carefully in the pay-off diagram**.

5 Marks

8. Prepare a pay-off diagram (**in one single graph**) using 3 call options (long call position) having strike prices Rs 250, Rs 260, and Rs 245; the hypothetical prices of the call options (in random order are): Rs 12; Rs 17, and Rs 25. Prepare a neat graph with appropriate labelling: **7.5 Marks**

SAPM PART B OPEN BOOK:

Q.1 You are an analyst in a fund and know the following information about your fund's performance

Year	Begin Value of Fund(in Cr)	End Value of Fund(in Cr.)
1	100	124
2	124	170
3	170	110
4	110	140
5	140	159
6	159	180
7	180	148

i. Calculate the arithmetic and geometric mean return (in %) of your fund over 7 years.
ii. You notice that one of these two returns is much higher than the other and thus decide to show it to your investors. Is it good practice for funds to do so? Which of these two is a more appropriate metric to track the long-term fund performance? and Why?

(5+5=10)

2. **Pharmaceutical Industry In India**

- The Indian Pharmaceutical market (IPM) accounts for approx. 3% of the global pharmaceutical industry in value terms and 20% in the volume terms. Indian pharmaceutical market is the world's largest supplier of generic drugs, accounting for 20% of global export volume. The growth in 2018 stood at 10% over the same period last year. Owing to robust historical growth, many MNC companies have active presence in the Indian pharma space.
- The IPM is highly fragmented with about 24,000 players (330 in the organised sector). The top ten companies including domestic and MNC companies make up for more than a third of the market. The market is dominated majorly by branded generics, which constitutes nearly 70% of the overall market. Over the counter (OTC) medicines and patented drugs constitute 21% and 9% respectively.
- Besides the domestic market, Indian pharma companies also has a large chunk of their revenues coming from exports. Major companies have revenues coming in from the sale of intermediates, active pharmaceutical ingredients (APIs), and formulations in various global markets. These include developed markets like US, Europe and Japan and semi developed markets across the world. Markets., Some companies also derive revenues by providing custom research and manufacturing services to innovator companies. Biopharmaceuticals is also increasingly becoming an area of interest given the complexity in manufacture and limited competition.
- The past few years have been glorious ones for the Indian companies, as major blockbusters lost their patent protection, paving way for generics. However, every passing year is leaving lower patented drug opportunities for the Indian companies for the launch of generics. Thus, Indian pharma companies have increased their R&D expenses. The companies are spending more to establish niche product portfolios for the future.

Sr	Company	Last Price	Change	% Chg	EPS	P/B	P/E	ROE
1	Sanofi India	5,718	-24.25	-0.42	410.0	6.12	13.94	26.8
2	Abbott India	20,199	5.70	0.03	375.8	15.22	53.75	30.0
3	Pfizer	4,550	-42.00	-0.91	133.9	7.30	33.98	36.0

4	**Alkem Lab**	**3,113**	**-1.75**	**-0.06**	**128.9**	**4.20**	**24.15**	**18.8**
5	**Divis Labs**	**3,368**	**-12.10**	**-0.36**	**111.1**	**7.60**	**30.31**	**28.1**
6	**GlaxoSmithKline**	**1,340**	**5.05**	**0.38**	**99.15**	**8.45**	**13.51**	**18.0**

i. Comment on the attractiveness of industry from competitive forces operating from investing point of view. Justify your answer.

ii. Which company within Pharma industry from amongst the given companies; you will pick up for investing ; in case you have identified this as an industry for investment. Explain why? Industry P/E ratio is 29. (7.5+7.5)

3. i) How to pick a time frame for company or industry data in doing the chart analysis? Technical analysis has certain flaws and therefore one should not over depend on technical analysis for investing decisions? Critically examine the statement in the light of trend, momentum and volume related tools learnt for technical analysis.

ii) Although P/E ratio is widely used for valuation of stocks but P/E is not best tool to value a stock for all sectors. Which ratio would be more appropriate to Auto, Cement, Engineering industry and why? Justify. (7.5+7.5)

4 i) Assume that you purchase a 10-year Rs 1,000 par value bond, with a 12% coupon, and a yield of 9%. Immediately after you purchase the bond, yields fall to 8% and remain at that level to maturity. Calculate the realized horizon yield, if you hold the bond for 5 years and then sell. Interest is paid annually.

ii) Both bond A and bond B have 6 percent coupons and are priced at par value. Bond A has 5 years to maturity, while bond B has 15 years to maturity. If interest rates suddenly rise by 2 percent, what is the percentage change in price of bond A? (7.5+7.5)

5 i) You being an investment expert in firm is doing a valuation of TechnoCraft stock using the following information:

- 2021 sales per share = Rs100.
- Net profit margin = 20%.
- Net new investment in fixed capital = 30% of sales increase (50% of these investments is financed with debt).
- Investment in working capital = 20% of sales increase.
- Beta = 1.3.
- Risk-free rate = 4%.
- Equity risk premium = 6%.

He forecasts the following future sales pattern for the company:

Sales Growth Forecast

2022	2023	2024	2025	2026	2027	Infinite
13%	11%	9%	7%	5%	5%	5%

What would bethe company's stock worth? Work out all steps required to arrive at the answer. (10)

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