PGDM 2018-20 & PGDM IB 2018-20

Investment Management

DM-314/IB-311

Trimester – III, End-Term Examination: March 2019

Time allowed: 2 Hrs 30 Min
Max Marks: 50

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means.** All other instructions on the reverse of Admit Card should be followed meticulously.

Section A: 3 out of 5 (Short Questions), 5 Marks each: 15 Marks

QA1: Discuss the constraints that have to be borne in mind while pursuing investment objectives.

QA2: Identify key differences between traditional finance and behavioural finance?

QA3: Assume the following spot rates

Year	1	2	3	4	5
Spot Rate	7.0%	7.2%	7.3%	7.4%	7.5%

What are the forward rates over each of the following five years?

QA4: The returns of two assets under four possible states of nature are given below:

State of nature	*Probability*	*Return on asset 1*	*Return on asset 2*
1	0.40	-6%	12%
2	0.10	18%	14%
3	0.20	20%	16%
4	0.30	25%	20%

a. What is the standard deviation of the return on asset 1 and on asset 2?(1.5 marks)
b. What is the covariance between the returns on assets 1 and 2? (1.5 marks)
c. What is the coefficient of correlation between the returns of the two assets? (2 marks)

QA5: Based on five years of monthly data, you derive the following information for the companies listed:

Company	ai (Intercept)	σi	riM
Intel	0.22	12.10%	0.72
Ford	0.10	14.60	0.33
Anheuser Busch	0.17	7.60	0.55
Merck	0.05	10.20	0.60
S&P 500	0.00	5.50	1.00

a) Compute the beta coefficient for each stock.
b) Assuming a risk-free rate of 8 percent and an expected return for the market portfolio of 15 percent, compute the expected required return for all the stocks and plot them on the SML.

Section B: 2 out of 3 (Long Questions), 10 Marks each: 20 Marks

QB1: A firm believer in acquiring quality manpower had spotted talent on hearing you talk on debt securities in a seminar conducted by the local Rotary Club. To confirm his instincts, he has invited you to give a lecture to the board of directors of his company to elucidate certain concepts in bond analysis. He has requested you to use the following data on bond B which is currently one of the most actively traded bonds:

	Bond B
Face value	Rs. 1,000
Coupon (interest rate)	8 percent payable annually
Term to maturity	5 years
Redemption value	Rs. 1,000
Current market price	Rs. 1,020

a. What is the yield to maturity of bond B?
b. What is the duration of bond B?
c. What is the convexity of bond B?
d. If the yield on bond B increases by 25 basis points, what will be the percentage change in the bond price?
e. Two years from now, bond B will sell at a yield of 9 percent and the coupon incomes over the next two years can be reinvested in short-term securities at a rate of 11 percent. What is the expected annualised rate of return over the two-year period?

QB2: a) What is the meaning of Capital Asset Pricing Model?
b) Discuss all the measures employed for portfolio performance?

QB3: You are evaluating various investment opportunities currently available and you have calculated expected returns and standard deviations for five different well-diversified portfolios of risky assets:

Portfolio	Expected Return	Standard Deviation
Q	7.8%	10.5%
R	10.0	14.0
S	4.6	5.0
T	11.7	18.5
U	6.2	7.5

a) For each portfolio, calculate the risk premium per unit of risk that you expect to receive ($[E(R)-RFR]/\sigma$). Assume that the risk-free rate is 3.0 percent.
b) Using your computations in Part a, explain which of these five portfolios is most likely to be the market portfolio. Use your calculations to draw the capital market line (CML).
c) If you are only willing to make an investment with σ =7.0%, is it possible for you to earn a return of 7.0 percent?
d) What is the minimum level of risk that would be necessary for an investment to earn 7.0 percent? What is the composition of the portfolio along the CML that will generate that expected return?
e) Suppose you are now willing to make and investment with σ =18.2%. What would be the investment proportions in the riskless asset and the market portfolio for this portfolio? What is the expected return for this portfolio?

Section C: Compulsory Case Study: 15 Marks

Innovative Industries Ltd was set up 15 years ago. After a few years of initial turbulence, the company found a few market segments in which it had some competitive advantage. The financials of the company for the last 5 years are given below:

Rs. in million

Income Statement Summary	20 x 1	20 x 2	20 x 3	20 x 4	20 x 5
• Net sales	2000	2400	2760	3310	3905
• Profit before interest & tax	700	840	995	1195	1480
• Interest	140	151	198	215	282
• Profit before tax	560	689	797	980	1198
• Tax	162	193	220	272	333
• Profit after tax	398	496	577	708	865
• Dividends	160	175	200	269	320
• Retained earnings	238	321	377	439	545
Balance Sheet Summary					
• Equity capital (Rs.10 par)	200	200	200	200	200
• Reserves and Surplus	800	1121	1498	1937	2482
• Loan funds	200	220	298	320	450
• Capital employed	1200	1541	1996	2457	3132
• Net fixed assets	800	950	1140	1432	1892
• Investments	150	160	170	185	200
• Net current assets	250	431	686	840	1040
	1200	1541	1996	2457	3132
• Market price per share(year ended)	180	248	259	352	506

The year 20x5 has just ended. The current market price per share is Rs.506. The market price per share at the beginning of 20x1 was Rs.160.

(a) What was the geometric mean return for the past 5 years?

(b) Calculate the following for the past 2 years? Return on equity, book value per share, EPS, PE ratio, (Prospective), market value to book value ratio.

(c) Calculate the CAGR of Sales & EPS for the period 20 x 1 – 20 x 5?

(d) Calculate the sustainable growth rate based on the average retention ratio and the average return on equity for the past 2 years?

(e) Decompose the ROE for the last 2 years in term of 5 factors.

(f) Estimate the EPS for the next year (20 x 6) using the following assumptions.

i. Net sales will grow at 25%
ii. PBIT as a percentage of net sales ratios will improve by 2%
iii. Interest will increase by 3% over its 20 x 5 value.
iv. Effective tax rate will be 30%.

(g) Derive the PE ratio using the constant growth model. For this purpose use the following assumptions:

i. The dividend payout ratio for 20 x 6 will be equal to the average dividend payout ratio for the period 20 x 4 – 20 x 5.
ii. The required rate of return is estimated with the help of the CAPM (Risk free return = 5%, Market risk premium = 13%, Beta of Innovative Industries Stock = 1.2).
iii. The expected growth rate in dividends is set equal to the product of the average return on equity and average retention ratio for the previous 2 years.