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If the standard deviation of return on the market index is 20 percent, calculate the total portfolio risk under single index model. (9)

(c) The following data available for a bond

Face Value	Rs. 1,000
Coupon rate	16%
Years to Maturity	6
Redemption value	Rs. 1,000
Yield to Maturity	17%

As the finance manager, you are requested to calculate current market price, Duration and volatility of this bond? (6)

OR

(d) What do you understand by Bond Immunization Strategy? Explain its usefulness to the Portfolio Manager. (5)

(e) Arbitrage Pricing Theory is an extension of Capital Asset Pricing Model (CAPM). Comment. (5)

(f) Write short notes on the following:

(i) Sharpe Ratio

(ii) Participants in securities market (5+5)

(400)

[This question paper contains 8 printed pages.]

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Your Roll No.

M.Com. Sem. – IV (OC)

E

Paper No. 7102

Security Analysis and Portfolio Management

Time : 3 Hours

Maximum Marks : 100

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt all questions.

All questions carry equal marks.

1. (a) What qualities are required for successful investment. Discuss the common errors in investment management. (10)
- (b) Describe briefly the key initiatives taken by SEBI to reform the Indian capital market. What are the key challenges that lie ahead for SEBI? (10)

OR

- (c) You want to invest in Zero coupon bond having a face value of Rs. 100. Following 3 bonds are available with different time to maturity:

P.T.O.

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Probability	PQR (%)	XYZ(%)
0.20	12	16
0.25	14	10
0.25	-7	28
0.30	28	-2

As an investment advisor you are required to :

- (i) Calculate the return and risk of investment in individual shares.
 - (ii) Compute the expected return and risk of the portfolio of these shares by assuming the equal amount of investment in the shares of both the companies.
 - (iii) Find out the proportion of each of the above shares to formulate a minimum risk portfolio. (15)
- (b) How does efficient frontier change when the possibility of lending and borrowing at a risk-free rate is introduced? (5)

OR

- (c) The following table gives an analysts's expected return on two stocks for particular market returns :

Market return	Aggressive stock	Defensive stock
5%	-5%	8%
25%	40%	18%

- (c) Horizon Limited's earnings and dividends have been growing at a rate of 15 percent per annum. This growth rate is expected to continue for 4 years. After that the growth rate will fall to 10 percent for next 4 years. Thereafter, the growth rate is expected to be 5 percent forever. If the last dividend per share was Rs. 2 and the investors' required rate of return on Horizon's equity is 12 percent, what is the intrinsic value per share? (9)
- (d) Prices of long-term bonds are more volatile than prices of short-term bonds. However, yields to maturity of short-term bonds fluctuate more than yields of long-term bonds. How do you reconcile these two empirical observations? Explain with suitable example. (5)
- (e) What is an efficient market? Evaluate the empirical evidence on strong-form efficient market hypothesis. (6)

3. (a) You are given the following data on a certain share and a call option on the stock :

Spot Price	Rs. 125.40
Exercise Price	Rs. 132
Time to expiration	4 months

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Risk free rate of return
(continuously compounded) 12% p.a.

Variance of stock's returns
(continuously compounded) 0.25

(i) Calculate the value of the option using the Black and Scholes model.

(ii) If this option is priced at Rs. 20, what investment strategy would you suggest?

(iii) Calculate the value of a put option on the basis of put call parity theory. (13)

(b) Let changes in the spot values are represented by Y and changes in the Futures Values by X, from a given set of calculations, it is found that

Mean of X = 1.5425

Mean of Y = 0.2345

Standard deviation of X = 0.680

Standard deviation of Y = 0.825

Coefficient of correlation between X and Y = 0.85

Obtain the regression equation from these data and determine the optimal hedge ratio. (7)

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(c) (i) Using Black and Scholes formula, calculate the value of a call option using the following data :

Exercise price = Rs. 100

Stock Price Rs. 90

Time to expiration 6 months

Risk free rate of return
(continuously compounded) 10% p.a.

Variance of stock's return
(continuously compounded) 0.25

(ii) By Put-call Parity, determine the value of put option using data in (i) above.

(iii) Decompose the values of each (call and put premium) into intrinsic value and time value. (15)

(d) Discuss the basic concepts underlying chart analysis. (5)

4. (a) An investor has decided to invest Rs. 1,00,000 in the shares of two companies namely, PQR and XYZ. The projections of returns from the shares of the two companies along with their probabilities are as under :

P.T.O.

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Bond	Horizon	Price (Rs.)
A	6 months	97
B	1 year	95
C	25 years	23.30

Which bond will you invest in purely on the basis of return? (5)

(d) The total risk on a security (expressed in terms of SD) is 12% and its Beta is 1.5. Calculate systematic risk and unsystematic risk of the security if market variance is 49. (5)

(e) Explain the different components of risk. (10)

2. (a) Discuss the key macroeconomic variables and their impact on stock market. (17)

(b) The current dividend on an equity share of National Computers limited is Rs. 4. The present growth rate is 60 percent. However, this will decline linearly over a period of 10 years and then stabilize at 10 percent. What is the intrinsic value per share of National Computers, if investors require a return of 15 percent from its stock? (3)

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- (i) What are the betas of the two stocks?
 (ii) What is the expected return on each stock if the market return is equally likely to be 5% and 25%?
 (iii) If the risk free rate is 8%, what is the SML?
 (iv) What are the alphas of the two stocks? (15)

(d) Explain the concept of Marking to market with the help of suitable example. (5)

5. (a) How many parameters must be estimated to analyse the risk-return profile of a 100-stock portfolio using (i) the original Markowitz Model, and (ii) the Sharpe Single Index Model. (5)

(b) Consider a portfolio of five securities with the following characteristics :

Security	Weighting	β_i	Random error term Standard deviation (percent)
U	0.10	1.35	23
V	0.20	1.05	60
X	0.15	0.80	52
Y	0.30	1.50	86
Z	0.25	1.12	67

P.T.O.