

2023

COMMERCE

Paper : DSE-306A

(Security Analysis and Portfolio Management)

Full Marks : 40

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

Module - I

(Security Analysis)

Answer *any two* questions.

1. (a) Drass Ltd. has been growing at a stable growth rate of 6% p.a. for the last 10 years but analysts believe that given the market conditions and overall industry situation Drass Ltd. will not be able to have any growth in the future in terms of its earnings and dividends. The previous dividend per share of Drass Ltd. is ₹ 15 on earnings per share of ₹ 30. The reported earning on equity is 8% and the cost of equity is 20%. Will it be worth investing if the current market price per share of Drass Ltd. is ₹ 60?  
(b) How will you use PBV and ROE together to analyse undervaluation and overvaluation?  
(c) How do you measure the liquidity of a market?  
(d) In case of a constant firm, analyse the relationship of risk with the PE ratio and liquidity with the PE ratio. 2+2+3+3
2. (a) The market price per share of C Ltd. is ₹ 170. For the previous year, the dividend declared was ₹ 15 per share. You as an analyst found that the growth rate of dividends will decline linearly to the long run stable rate of 9% over a 6 years transition period from the current growth rate of 12.5%. Compute the present value of the stock, if the risk free rate is 4%, expected market return is 16% and beta of the stock is 0.8.  
(b) Warland Ltd. is performing quite well and is expected to grow at a supernormal growth rate of 20% for the coming 3 years, 15% for the fourth year and thereafter at a constant rate of 10%. The current dividend on the company's share is ₹ 12 on earnings per share of ₹ 25. The dividend payout is expected to remain unchanged for the coming four years but will increase to 55% of the earnings from the fifth year. If the required rate of return is 15%,
  - (i) Will an investor be willing to buy the shares at market price of ₹ 800 each?
  - (ii) What will be the intrinsic price of the share at the end of the sixth year? 4+(4+2)

**Please Turn Over**

3. (a) A bond having face value of ₹ 2,500 issued at par paying a coupon of 8% annually was issued 3 years ago with a maturity period of 8 years.
- (i) What is the duration of the bond?
- (ii) What will be the proportionate change in the bond price if the yield rate is increased by 2%?
- (b) An investor is considering the information on bonds issued by two different companies :

Company	Coupon Rate	Maturity Period	Par Value	Initial YTM
A Ltd.	4%	2 years	₹ 1000	6%
B Ltd.	4%	6 years	₹ 1000	6%

The coupon interest are payable semi-annually. If the market interest rate goes up by 50 basis points, which bond will be more sensitive to the interest rate change? Prove your conclusion based on the current information. (3+3)+4

4. (a) What is support and resistance level?
- (b) Explain the relationship between volume and trends in technical analysis.
- (c) Identify any two buy and sell signals using a stock price line of daily closing prices for 100 trading days and a curving trend line using a 10 day simple moving average. Drawing of charts is not required.
- (d) A technical analyst has generated a 20 day simple moving average and a 200 day simple moving average using a stock price line of daily closing prices of 800 trading days. What movements should the analyst consider in order to identify a buy signal? 2+2+4+2

### Module - II

#### (Portfolio Management)

Answer *any two* questions.

5. (a) Explain how you will measure 'real return' on a security.
- (b) An investor has purchased the shares of Gamma Ltd. in August 2018 for ₹ 2,150 per share and has sold them in September 2022 for ₹ 2,250 per share. The financial year end market price of Gamma Ltd.'s shares and dividend paid by the company over the period 2017-2018 to 2022-2023 are given below.

Year ending 31st March	Market Price of Shares (₹ per share)	Dividend paid (₹ per share)
2018	2,100	2.50
2019	2,250	3.50
2020	2,050	3.00
2021	2,170	2.00
2022	2,120	3.00
2023	2,290	2.50

In addition, the company has declared and paid an interim dividend of ₹ 1.00, ₹ 2.00 and ₹ 1.50 per share respectively in the month of November 2018, 2020 and 2022, and quarterly cash dividend of ₹ 2.00 per share each in the month of July 2018 and 2022. Besides in August 2022, the company has issued bonus dividend of one ₹ 100 fully paid share for every two shares held, the market price on issuing date being ₹ 2,150 per share.

From the above information, determine the following over the investor's holding period.

- (i) single period ex post total returns
- (ii) mean return, and
- (iii) compound annual rate of return.

[Given :  $(1.07912)^{1/5} = 1.01534$ ;  $(1.07229)^{1/5} = 1.01406$ ;  $(1.05539)^{1/5} = 1.01084$ ;  
 $(1.05519)^{1/5} = 1.0108$ ;  $(1.05449)^{1/5} = 1.01067$ ;  $(1.05402)^{1/5} = 1.01058$ ]

2+8

6. (a) "Increasing portfolio diversification gradually reduces unsystematic risk, leaving behind only systematic risk." Examine the statement with the help of a graphical illustration.
- (b) Given the following :

	<u>Stock X</u>	<u>Stock Y</u>
Expected Return (%)	30	15
Variance (%)	16	4

Advise based on Markowitz principle whether a risk averse investor will have any diversification benefit in holding a combination of the above two stocks in the following cases of covariance between their returns. If you recommend portfolio formation, then also determine minimum variance portfolio combination and risk-return profile of such combination.

- (i) Covariance = 4
- (ii) Covariance = 0

4+6

7. What do you mean by 'efficient frontier' and 'optimal portfolio'? Explain with the help of graphical illustrations how a risk averse investor would determine his optimal portfolio of two risky securities having negative, but not perfectly negative correlation between their returns. 2½+7½

8. (a) Consider the following information about two mutual fund schemes :

Name of the Scheme	Beta	Expected return
Templeton Market Fund	1.00	14%
Axis Energy Fund	0.80	13%

An investor has ₹ 10,00,000 to invest and he puts ₹ 6,00,000 in Templeton and ₹ 2,00,000 each in Axis and riskless bonds. Find the beta and expected return of his portfolio.

Please Turn Over

(b) Consider the following information for three portfolios X, Y and Z and the market index.

Portfolio	Mean return (%)	Standard Deviation (%)	Beta
X	15	20	0.9
Y	17	24	1.1
Z	19	27	1.2
Market Index	16	20	1

The mean risk-free rate of return is 10%. Rate the portfolios based on Sharpe and Treynor measures. Give comment on your rankings. 5+5

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