

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.

COURSE CODE: 19AF/MC/SP54

B.COM A&F DEGREE EXAMINATION – NOVEMBER 2021

COMMERCE – SHIFT II

COURSE : MAJOR – CORE

PAPER : SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

TIME : 3 HOURS

MAX. MARKS: 100

SECTION – A

Answer all the questions:

(3 x 4 = 12)

1. State the assumptions of Sharpe's Single Index Model.
2. Explain the limitations of Capital Asset Pricing Model.
3. Evaluate the performance of the following portfolios:
(a) portfolio I: $R_P = 50\%$, $\sigma_P = 25\%$, $R_M = 30\%$, $\sigma_M = 20\%$, $I_{RF} = 10\%$
(b) portfolio II: $R_P = 50\%$, $\beta_P = 1.2$, $R_M = 30$, $\beta_M = 1$, $I_{RF} = 10\%$

SECTION – B

Answer any THREE questions:

(3 x 16 = 48)

4. Enumerate in detail the various types of risk with example.
5. A) Calculate the value of equity share from the following:

Equity share capital (Rs. 20 each)	Rs.50,00,000
Reserves and Surplus	Rs.5,00,000
15% secured loans	Rs.25,00,000
12.5% unsecured loans	Rs.10,00,000
Fixed assets	Rs.30,00,000
Investments	Rs.5,00,000
Operating profits	Rs.25,00,000
Tax rate	50%
P/E Ratio	12.5%

- b) A bond of the face value of Rs.2, 000 and coupon rate of 9% is presently traded at Rs.750. Time to maturity in 10 years. It is expected that there will not be any interest default by the issuing company but at the time of maturity, a dividend of 70% only may be received. Find out the expected YTM of the bond. Also find out YTM by appropriate yield method.
6. An investor is contemplating the construction of a portfolio for which he has short listed two securities X and Y. The expected return and standard deviation of these securities are as follows:

Security	Expected Return	Standard Deviation
X	9%	2%
Y	9%	4%

Find out the expected returns and standard deviation of the following portfolios given that the correlation coefficient between X and Y is -1.

Security X	Security Y
100%	0%
80%	20%
66%	34%
20%	80%
0%	100%

7. From the following information, construct the optimum portfolio as per Sharpe Optimization Model:

Security	Expected Return	β	σ_{ei}^2
A	12	2.0	40
B	16	0.9	20
C	24	1.1	15
D	18	1.1	50
E	19	0.8	16
F	13	1.3	25

Risk – free rate is 8% and σ_M^2 is 25.

SECTION – C

Answer any ONE question:

(1 x 40 = 40)

8. Financials of VG Ltd. Are given below: (Rs. In millions)

	2011	2012	2013	2014
Net sales	250	290	345	480
Cost of goods sold	190	222	270	378
Gross profit	60	68	75	102
Operating expenses	15	18	20	28
Operating profit	45	50	55	74
Non-operating surplus/deficit	5	8	9	6
PBIT	50	58	64	80
Interest	15	18	20	24
PBT	35	40	44	56
Tax	9	11	12	14
PAT	26	29	32	42
Dividends	10	12	12	16
Retained earnings	16	17	20	26
Equity share capital (Rs. 5 par)	80	80	80	120
Reserves and surplus	40	57	77	63

Shareholder's fund	120	137	157	183
Loan funds	60	63	73	90
Capital employed	180	200	230	273
Net fixed assets	105	128	150	195
Investments	10	12	15	5
Net current assets	65	60	65	73
Total assets	180	200	230	273
Market price per share (end of the year)	Rs.17.50	21.00	24.5	24.2

*Bonus shares were issued in the ratio 1:2

- a) Calculate the following for last four years: Return on equity, Book value per share, EPS, Bonus Adjustment factor, Adjusted EPS, PE Ratio (Prospective), PB Ratio (Retrospective), Retention Ratio. (15 marks)
 - b) Calculate the CAGR of sales, CAGR of EPS and Volatility of ROE. (5 marks)
 - c) Calculate the sustainable growth rate based on the average retention ratio and average return on equity for the past 3 years. (10 marks)
 - d) Decompose the ROE for the last two years in terms of five factors. (10 marks)
9. How 100 shares of WIPRO grew to be over Rs 3.28 crores in 27 years?
Assume you bought 100 shares of WIPRO in 1990. At that time, the face value of one stock of WIPRO was Rs 10. For simplicity, we are considering that you bought the stocks at the face value. Hence, your initial investment would have been Rs 1,000.

(Note: Stocks in the Indian stock market rarely trade below their face value. Most of the share's trade at a high premium compared to their face value. However, there have been a number of adjustments in the share price of the company since 1990 because of various bonuses and stock splits. Therefore, just for simplicity, we are considering that you purchased the stock at the face value. Moreover, when you compare the appreciated value with the purchase price, you'll understand that it wouldn't have made much difference even if you had bought this stock at a little premium) Since 1990, WIPRO has given seven bonuses to its shareholders and one stock split (till 2017). Let's also assume that you didn't touch the stock after buying. This means that you didn't sell any stock since the purchase and also avoided any profit booking. Now, let us analyze the bonuses and stock split of WIPRO for the past 27 years.

- 1990: 100 shares
- 1992: 200 shares (1:1 bonus on 12-08-1992)
- 1995: 400 shares (1:1 bonus on 24-02-1995)
- 1997: 1,200 shares (2:1 bonus on 20-10-1997)
- 1999: 6,000 shares (5:1 split on 27-09-1999)
- 2004: 18,000 shares (2:1 bonus on 25-06-2004)
- 2005: 36,000 shares (1:1 bonus on 22-08-2005)
- 2010: 60,000 shares (2:3 bonus on 15-06-2010)

- 2017: 1,20,000 shares (1:1 bonus on 13-06-2017)

In short, 100 shares of WIPRO bought in 1990 would have turned out to be 1, 20,000 shares by 2017.

Capital Appreciation

Let's find out the current worth of the 100 shares that you bought in 1990.

As of May 2018, the market price of one share of Wipro is Rs 273.75

Total Number of shares= 1, 20,000

Net Value = Rs 273.75 * 1, 20,000 = Rs 3, 28, 50,000.

The net appreciated value would be worth over 3.28 crores.

Your small investment in the 100 shares of WIPRO in 1990 would have turned out to be worth over 3.28 crores in the next 27 years. In the last 27 years, WIPRO has given a decent annual dividend to its shareholders. However, here we are just considering the dividends for the last four years. Annual dividend per share by WIPRO for last 4 years—

- 2014: Rs 8.00
- 2015: Rs 12.00
- 2016: Rs 6.00
- 2017: Rs 4.00

Questions

- a) What is meant by bonus shares and Stock Split? Mention the bonus received years. (10 marks)
- b) What is capital appreciation and income? (5 marks)
- c) How share premium is calculated? (5 marks)
- d) Calculate the dividend for 4 years starting from 2014 – 2017. (10 marks)
- e) Comment on the strategy that would have been adopted by WIPRO. (10 comment)
