

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**MBA – SEMESTER 3 – EXAMINATION – WINTER 2018****Subject Code: 2830203****Date: 11/12/2018****Subject Name: Security Analysis and Portfolio Management****Time: 10:30 AM To 01:30 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Q.1 (a)****6****The net wealth of the aggregate economy is equal to the sum of**

1. A. All real assets. B. All financial assets  
C. All physical assets. D. All real and financial assets.
2. **In words, the real rate of interest is approximately equal to**  
A. The nominal rate times the inflation rate B. The inflation rate minus the nominal rate  
C. The nominal rate minus the inflation rate. D. The inflation rate divided by the nominal rate.
3. **This type of risk is avoidable through proper diversification.**  
A. Portfolio Risk B. Systematic Risk  
C. Unsystematic Risk D. Total Risk
4. **Portfolio theory as described by Markowitz is most concerned with**  
A. The elimination of systematic risk. B. The identification of unsystematic risk  
C. The effect of diversification on portfolio risk. D. Active portfolio management to enhance returns.
5. **The risk-free security has a beta equal to \_\_\_\_\_, while the market portfolio's beta is equal to \_\_\_\_\_.**  
A. One; More than one. B. One; less than one.  
C. Zero; one. D. Less than zero; more than zero.
6. **Assume that a security is fairly priced and has an expected rate of return of 0.13. The market expected rate of return is 0.13 and the risk-free rate is 0.04. The beta of the stock is**  
A. 1.25 B. 1.7  
C. 1.0 D. 0.95

**Q.1 (b) Define the following****04**

- (a) Convexity
- (b) Effective Interest Rate
- (c) Alpha
- (D) Limit Order

**Q.1 (c) Differentiate Investment from Speculation.****04****Q.2 (a) What do you understand by efficient market hypothesis? Also explain various forms of market efficiency in detail.****07**

- (b) Mr. X is considering an investment in one of the two securities. Given the information below, advice him to select the investment option based on standard Deviation and Expected Return. 07

| Security A  |        | Security B  |        |
|-------------|--------|-------------|--------|
| Probability | Return | Probability | Return |
| 0.30        | 19%    | 0.20        | 22%    |
| 0.40        | 15%    | 0.30        | 06%    |
| 0.30        | 11%    | 0.30        | 14%    |
|             |        | 0.20        | - 5%   |

**OR**

- (b) During the past five years, the return of a security were as under 07

| Year   | 1   | 2  | 3  | 4   | 5   |
|--------|-----|----|----|-----|-----|
| Return | 10% | 7% | 4% | -9% | 10% |

Calculate (a) Cumulative Wealth Index (b) Arithmetic Mean (c) Geometric Mean (d) Variance (5) Standard Deviation

- Q.3** (a) Explain in detail Arbitrage Pricing Theory 07  
 (b) The returns of 4 stocks, A, B, C, and D over a period of 5 years have been as follows: 07

|   | 1   | 2   | 3   | 4   | 5   |
|---|-----|-----|-----|-----|-----|
| A | 8%  | 10% | -6% | -1% | 9 % |
| B | 10% | 6%  | -9% | 4 % | 11% |
| C | 9%  | 6%  | 3%  | 5%  | 8%  |
| D | 10% | 8%  | 13% | 7%  | 12% |

Calculate the return on:

- portfolio of one stock at a time
- portfolios of two stocks at a time
- portfolios of three stocks at a time.
- a portfolio of all the four stocks.

Assume equiproportional investment.

**OR**

- Q.3** (a) Write a detail note on Financial Statement Analysis and its techniques. 07  
 (b) A portfolio consists of 4 securities, 1, 2, 3, and 4. The proportions of these securities are:  $w_1=0.3$ ,  $w_2=0.2$ ,  $w_3=0.2$ , and  $w_4=0.3$ . The standard deviations of returns on these securities (in percentage terms) are:  $\sigma_1=5$ ,  $\sigma_2=6$ ,  $\sigma_3=12$ , and  $\sigma_4=8$ . The correlation coefficients among security returns are:  $\rho_{12}=0.2$ ,  $\rho_{13}=0.6$ ,  $\rho_{14}=0.3$ ,  $\rho_{23}=0.4$ ,  $\rho_{24}=0.6$ , and  $\rho_{34}=0.5$ . What is the standard deviation of portfolio return? 07

- Q.4** (a) Discuss the heuristic-driven biases and cognitive errors in Behavioral Finance. 07  
 (b) The rate of return on the stock of Sigma Technologies and on the market portfolio for 6 periods has been as follows: 07

| Period | Return on the stock<br>of Sigma Technologies (%) | Return on the<br>market portfolio (%) |
|--------|--------------------------------------------------|---------------------------------------|
| 1      | 16                                               | 14                                    |
| 2      | 12                                               | 10                                    |
| 3      | -9                                               | 6                                     |
| 4      | 32                                               | 18                                    |
| 5      | 15                                               | 12                                    |
| 6      | 18                                               | 15                                    |

- What is the beta of the stock of Sigma Technologies.?
- Establish the characteristic line for the stock of Sigma Technologies

**OR**

- Q.4 (a) Explain in detail the Dow theory and how is it used to determine the direction of stock market? **07**
- (b) The following information is given: **07**

|                                                        |   |     |
|--------------------------------------------------------|---|-----|
| Expected return for the market                         | = | 15% |
| Standard deviation of the market return                | = | 25% |
| Risk-free rate                                         | = | 8%  |
| Correlation coefficient between stock A and the market | = | 0.8 |
| Correlation coefficient between stock B and the market | = | 0.6 |
| Standard deviation for stock A                         | = | 30% |
| Standard deviation for stock B                         | = | 24% |

- (i) What is the beta for stock A?
- (ii) What is the expected return for stock A?

- Q.5 Consider the following information for three mutual funds, L, M, and N, and the market. **14**

|              | Mean return (%) | Standard deviation (%) | Beta |
|--------------|-----------------|------------------------|------|
| L            | 15              | 20                     | 1.6  |
| M            | 12              | 11                     | 0.8  |
| N            | 18              | 15                     | 1.3  |
| Market index | 13              | 14                     | 1.00 |

The mean risk-free rate was 8 percent. Calculate the Treynor measure, Sharpe measure, Jensen measure and  $M^2$  for the three mutual funds and the market index.

**OR**

- Q.5 Consider the following information for three mutual funds, X, Y, and Z, and the market. **14**

|              | Mean return (%) | Standard deviation (%) | Beta |
|--------------|-----------------|------------------------|------|
| X            | 24              | 22                     | 1.8  |
| Y            | 16              | 14                     | 1.2  |
| Z            | 12              | 13                     | 0.8  |
| Market index | 10              | 10                     | 1.00 |

The mean risk-free rate was 7 percent. Calculate the Treynor measure, Sharpe measure, Jensen measure and  $M^2$  for the three mutual funds and the market index.

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