1. Stock X and Y have the following historical dividend and price data for the period between 2007 and 2011.[10]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Stock X | | Stock Y | |
| Dividend  (in Rs)  Per share | Year and  Price  (in Rs) | Dividend  (in Rs)  Per share | Year and  Price  (in Rs) |
| 2007 | 25 | 500 | 10 | 300 |
| 2008 | 30 | 600 | 30 | 500 |
| 2009 | 35 | 500 | 20 | 400 |
| 2010 | 40 | 600 | 40 | 600 |
| 2011 | 45 | 700 | 50 | 700 |

The yearend price of stock X and Y in 2006 were Rs. 400 and Rs. 200 respectively.

1. Calculate the annual rate of return for each stock
2. Calculate the average rate of return for each stock.
3. Calculate standard deviation for annual rate of return for each stock.
4. Which stock is more risky in relative term?  
   [hint: when asked for absolute term, use standard deviation for measurement and when asked for relative term, use coefficient of variation for measurement]
5. Consider the following probability distribution of rate of returns associated with stock A and B.[10]

|  |  |  |
| --- | --- | --- |
| Probability | Return from  Stock A(%) | Return from  Stock B(%) |
| 0.2 | 10 | 12 |
| 0.4 | 15 | 10 |
| 0.3 | 5 | 9 |
| 0.1 | (2) | (4) |

1. Calculate the expected return and standard deviation of each stock.
2. Calculate the covariance and correlation coefficient between stock A and B.
3. If you form a portfolio investing 40 percent fund in stock A and 60 percent in stock B. What are the expected return and standard deviation of your portfolio?
4. Which investment would you prefer? Stock A , Stock B or the portfolio?Why?
5. Stocks of P and Q have the following probability distribution of expected furniture returns.[10]

|  |  |  |
| --- | --- | --- |
| Probability | Stock P | Stock Q |
| 0.3 | -10% | 5% |
| 0.3 | 10 | 20 |
| 0.4 | 20 | 35 |

1. What are the expected returns and standard deviation of each stock?
2. What is the coefficient of variation of each stock?
3. What stock is riskier in relative term?
4. What is the average return for a portfolio consisting 80% of Stock P and 20 percent of stock Q?
5. Stock X and Y have the following probability distribution of future returns.[10]

|  |  |  |
| --- | --- | --- |
| Probability | Returns of Stock X | Returns of stock Y |
| 0.1 | -10% | -25% |
| 0.2 | 5% | 0% |
| 0.3 | 15% | 20% |
| 0.3 | 20% | 25% |
| 0.1 | 30% | 35% |

* Calculate expected return of stock X and Y.
* Calculate standard deviation of stock X and Y.
* What is the expected return on portfolio if you invest 60% on stock X and 40% on stock Y.
* Which stock do you prefer for investment?
* Would you think that forming a portfolio of these two stocks reduces the risk?

1. Consider the following probability distribution of rate of returns associated with stock A and B.

|  |  |  |  |
| --- | --- | --- | --- |
| Events | Probability | Return from stock A(%) | Return from stock B(%) |
| 1 | 0.2 | 10 | (4) |
| 2 | 0.1 | 15 | 10 |
| 3 | 0.3 | 6 | 9 |
| 4 | 0.1 | (2) | 12 |

1. Calculate the expected return and standard deviation of each stock.
2. Calculate the covariance and correlation coefficient between stock A and B.
3. If you form a portfolio investing 40 percent fund in stock A and 60 percent in stock B. What are the expected return and standard deviation of your portfolio?
4. Which investment would you prefer? Stock A, Stock B or the portfolio? Why?