

M.Com (Semester - I) Examination, April 2019

**COC - 213 - PORTFOLIO MANAGEMENT (OA-18A)**

Duration: 3 Hours

Max Marks: 60

1. This paper consists of **Nine** questions carrying **Equal** marks.
2. Question No.1 consists of **5 Compulsory** questions of **2 marks each**.
3. Answer **any Five** questions from question 2,3,4,5,6,7,8, and 9.
4. **Each** question carries **10 marks**. Figures to the **right** indicate marks.
5. Present value and Logarithm Tables will be **supplied** on request.

1.	<b>Answer the following short questions:</b> <b>5 X 2 =10 Marks.</b>																
	A. Define Efficient Frontier.	2															
	B. Distinguish any two points between Capital Market Line and Security Market Line.	2															
	C. What is Market Portfolio?	2															
	D. Systematic Risk Vs. Un-systematic Risk	2															
	E. Estimate the stock return by using the <b>CAPM Model</b> and the <b>Arbitrage Model</b> . The particulars are as follows:  The expected return of the market is 15 per cent and equity's beta is 1.2. The risk-free rate of interest is 8 per cent.	2															
	<table border="1"> <thead> <tr> <th>Factor</th><th>Market Price of Risk (%)</th><th>Sensitivity Index</th></tr> </thead> <tbody> <tr> <td>Inflation</td><td>6</td><td>1.1</td></tr> <tr> <td>Industrial Production</td><td>2</td><td>0.8</td></tr> <tr> <td>Risk Premium</td><td>3</td><td>1.0</td></tr> <tr> <td>Interest Rate</td><td>4</td><td>(-0.9)</td></tr> </tbody> </table>	Factor	Market Price of Risk (%)	Sensitivity Index	Inflation	6	1.1	Industrial Production	2	0.8	Risk Premium	3	1.0	Interest Rate	4	(-0.9)	
Factor	Market Price of Risk (%)	Sensitivity Index															
Inflation	6	1.1															
Industrial Production	2	0.8															
Risk Premium	3	1.0															
Interest Rate	4	(-0.9)															

2	A. Explain the significance of Portfolio Diversification with help of Correlation Co-efficiency of Stocks.	5																								
	B. What is Feasible Set of Portfolio? Discuss the significance of Efficient Frontier in selection of Optimum Portfolio.	5																								
3	A. How do you distinguish between Sharpe's Single Index Model and Capital Asset Pricing Model?	5																								
	B. Discuss in brief the significance of Alpha and Beta of a Portfolio under Sharpe's Single Index Model.	5																								
4	A. What is Portfolio Revision? Explain the need for Portfolio Revision.	5																								
	B. Distinguish between Constant Rupee Value Plan and Constant Ratio Plan of Portfolio Revision.	5																								
5 -A	<p>The following information is available about the stocks of two companies X and Y:</p> <table border="1"><thead><tr><th colspan="2">Stock A</th></tr><tr><th>Expected Return (%)</th><th>Probability</th></tr></thead><tbody><tr><td>-10</td><td>0.10</td></tr><tr><td>15</td><td>0.35</td></tr><tr><td>20</td><td>0.30</td></tr><tr><td>25</td><td>0.25</td></tr></tbody></table> <table border="1"><thead><tr><th colspan="2">Stock B</th></tr><tr><th>Expected Return (%)</th><th>Probability</th></tr></thead><tbody><tr><td>10</td><td>0.15</td></tr><tr><td>20</td><td>0.20</td></tr><tr><td>25</td><td>0.30</td></tr><tr><td>30</td><td>0.35</td></tr></tbody></table> <p>The coefficient of correlation between the returns on X and Y is 0.05. A portfolio is constructed by allocating the funds between X and Y in the ratio of 2:3.</p> <p>You are <b>required</b> to calculate:</p> <ol style="list-style-type: none"><li>The expected return on the portfolio.</li><li>The portfolio risk.</li></ol>	Stock A		Expected Return (%)	Probability	-10	0.10	15	0.35	20	0.30	25	0.25	Stock B		Expected Return (%)	Probability	10	0.15	20	0.20	25	0.30	30	0.35	5
Stock A																										
Expected Return (%)	Probability																									
-10	0.10																									
15	0.35																									
20	0.30																									
25	0.25																									
Stock B																										
Expected Return (%)	Probability																									
10	0.15																									
20	0.20																									
25	0.30																									
30	0.35																									

5-B	<p>Following is the data regarding six stocks</p> <table><tr><td>Stocks</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr><tr><td>Return (%)</td><td>8</td><td>8</td><td>12</td><td>4</td><td>9</td><td>8</td></tr><tr><td>Risk (Standard Deviation) (%)</td><td>4</td><td>5</td><td>12</td><td>4</td><td>5</td><td>6</td></tr></table> <p>i. Assuming three will have to be selected, state which ones will be selected?</p> <p>ii. Assuming a perfect correlation between stock A and C, show whether is it preferable to invest 75% in A and 25% in C ,or invest 100% in E.</p>	Stocks	A	B	C	D	E	F	Return (%)	8	8	12	4	9	8	Risk (Standard Deviation) (%)	4	5	12	4	5	6	5			
Stocks	A	B	C	D	E	F																				
Return (%)	8	8	12	4	9	8																				
Risk (Standard Deviation) (%)	4	5	12	4	5	6																				
6-A	<p>The following details are given for X and Y companies 'stocks and the Bombay Sensex for a period of one year. Calculate the <b>Systematic and Unsystematic Risk</b> for the companies stocks. If equal amount of money is allocated for the stocks what would be the portfolio risk?</p> <table><tr><td></td><td>X Stock</td><td>Y Stock</td><td>Sensex</td></tr><tr><td>Average Return (%)</td><td>15</td><td>25</td><td>6</td></tr><tr><td>Variance of Return (%)</td><td>6.3</td><td>5.86</td><td>2.25</td></tr><tr><td><math>\beta</math></td><td>0.71</td><td>0.685</td><td></td></tr><tr><td>Correlation Co-efficient</td><td>0.424</td><td></td><td></td></tr><tr><td>Co-efficient of determination (<math>r^2</math>)</td><td>0.18</td><td></td><td></td></tr></table>		X Stock	Y Stock	Sensex	Average Return (%)	15	25	6	Variance of Return (%)	6.3	5.86	2.25	$\beta$	0.71	0.685		Correlation Co-efficient	0.424			Co-efficient of determination ( $r^2$ )	0.18			7
	X Stock	Y Stock	Sensex																							
Average Return (%)	15	25	6																							
Variance of Return (%)	6.3	5.86	2.25																							
$\beta$	0.71	0.685																								
Correlation Co-efficient	0.424																									
Co-efficient of determination ( $r^2$ )	0.18																									
6-B	<p>How many inputs are needed for a portfolio analysis involving 40 securities in the Sharpe Single Index Model and Markowitz Model? List out them and give the reasons for variation of number of inputs.</p>	3																								
7-A	<p>The following is the information regarding the stocks of four companies:</p> <table><tr><td>Stock</td><td>Expected return</td><td>Beta</td></tr><tr><td>Gamma</td><td>12%</td><td>1.10</td></tr><tr><td>Delta</td><td>14%</td><td>0.80</td></tr><tr><td>Epsilon</td><td>16%</td><td>1.05</td></tr><tr><td>Kappa</td><td>18%</td><td>1.15</td></tr></table> <p>If the return from gilt-edged securities is 5% and market index is 15%, you are <b>required</b> to:</p> <p>a. Identify the undervalued and overvalued securities.</p> <p>b. Suggest which securities should be bought and which securities should be sold.</p>	Stock	Expected return	Beta	Gamma	12%	1.10	Delta	14%	0.80	Epsilon	16%	1.05	Kappa	18%	1.15	5									
Stock	Expected return	Beta																								
Gamma	12%	1.10																								
Delta	14%	0.80																								
Epsilon	16%	1.05																								
Kappa	18%	1.15																								



7-B	<p>If the return on market index <math>R_m= 18\%</math>, and the risk free rate of return <math>R_f=10\%</math>, the risk of market index,<math>\sigma_m = 5\%</math>.</p> <p><b>You are required to answer the following</b></p> <p>a. How would you construct an “efficient portfolio” to produce an expected return of 16% and what would be its risk?</p> <p>b. Given the above information and fact that investor has personal funds ₹1,00,000 to invest, how would you construct a portfolio giving an expected return on portfolio is 20% and what would be its Risk?</p>	5																									
8-A	<p>The following information is available regarding four mutual funds:</p> <table><tr><th>Funds</th><th>Risk-Free Rate of Return (%)</th><th>Portfolio Return (%)</th><th>Portfolio Risk (%)</th><th>Portfolio Beta</th></tr><tr><td>TEMPLETON</td><td>8</td><td>11</td><td>15</td><td>0.90</td></tr><tr><td>SEDARIS</td><td>8</td><td>15</td><td>22</td><td>0.85</td></tr><tr><td>MARKO</td><td>8</td><td>21</td><td>38</td><td>1.20</td></tr><tr><td>OMEGA</td><td>8</td><td>13</td><td>23</td><td>1.15</td></tr></table> <p>You are <b>required</b> to:</p> <p>a. Rank the above mutual funds based on the <b>Sharpe and Treynor’s ratios</b>.</p> <p>b. Comment on the extent of diversification of these funds based on the ranks found in (a) above.</p>	Funds	Risk-Free Rate of Return (%)	Portfolio Return (%)	Portfolio Risk (%)	Portfolio Beta	TEMPLETON	8	11	15	0.90	SEDARIS	8	15	22	0.85	MARKO	8	21	38	1.20	OMEGA	8	13	23	1.15	7
Funds	Risk-Free Rate of Return (%)	Portfolio Return (%)	Portfolio Risk (%)	Portfolio Beta																							
TEMPLETON	8	11	15	0.90																							
SEDARIS	8	15	22	0.85																							
MARKO	8	21	38	1.20																							
OMEGA	8	13	23	1.15																							
8-B	<p>Consider the following data</p> <table><tr><th>Fund</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th></tr><tr><td>Return (%)</td><td>14</td><td>12</td><td>16</td><td>10</td><td>20</td></tr><tr><td><math>\sigma</math> (%)</td><td>6</td><td>4</td><td>8</td><td>6</td><td>10</td></tr><tr><td><math>\beta</math></td><td>1.5</td><td>0.5</td><td>1.0</td><td>0.5</td><td>2.0</td></tr></table> <p>Based on the Zero-beta CAPM, what is Jenson’s differential return for the funds if the return on Zero-beta asset is 4 per cent and Market return is 13 percent?</p>	Fund	A	B	C	D	E	Return (%)	14	12	16	10	20	$\sigma$ (%)	6	4	8	6	10	$\beta$	1.5	0.5	1.0	0.5	2.0	3	
Fund	A	B	C	D	E																						
Return (%)	14	12	16	10	20																						
$\sigma$ (%)	6	4	8	6	10																						
$\beta$	1.5	0.5	1.0	0.5	2.0																						

9	<p>Determine the equilibrium factor pricing equation using Arbitrage Pricing Model, implied by the following two equilibrium portfolios:</p> <table border="1"> <tr> <th>Equilibrium Portfolio</th><th>Expected Return (%)</th><th><math>\beta_p</math></th></tr> <tr> <td>Gold</td><td>14</td><td>1.3</td></tr> <tr> <td>Hedge Fund</td><td>12</td><td>1.1</td></tr> </table> <p>What are the Arbitrage opportunities if stock in 'J' Fund may be purchased? If so, illustrate the Arbitrage Profits, if stock J is having the following information:</p> <table border="1"> <tr> <th>Equilibrium Portfolio</th><th>Expected Return (%)</th><th><math>\beta_p</math></th></tr> <tr> <td>J</td><td>14</td><td>1.15</td></tr> </table>	Equilibrium Portfolio	Expected Return (%)	$\beta_p$	Gold	14	1.3	Hedge Fund	12	1.1	Equilibrium Portfolio	Expected Return (%)	$\beta_p$	J	14	1.15	10
Equilibrium Portfolio	Expected Return (%)	$\beta_p$															
Gold	14	1.3															
Hedge Fund	12	1.1															
Equilibrium Portfolio	Expected Return (%)	$\beta_p$															
J	14	1.15															