BBF 3201 INVESTMENT AND PORTFOLIO MANAGEMENT
MAY 2024 FINAL EXAM APPENDIX- RELEVANT FORMULAE

A. Risk and Return Measures

1. Expected Return (E(R)) = $\sum$ [P(i) x R(i)] or $\sum$R(i)/n

   Where:

   E(R) = Expected Return

   P(i)= Probability of outcome (i)

   R(i)= Return of Outcome (i)

   $\sum$= Summation symbol, indicating the sum of all possible outcomes

   n= number of possible or actual outcomes.

2. Variance of returns (σ^2) =$\sum$[P(i) x(R(i)^2]
3. Standard deviation (σ)= $\sqrt{(\sigma^2)}$= $\sqrt{\sum}$[P(i) x(R(i)^2]
4. Covariance for two assets, R1 and R2=Cov(R1,R2)

   =E[(R1-E(R1))(R2-E(R2))]

   Where E(R1)=Expected Return of R1

   E(R2)=Expected Return of R2

5. Correlation coefficient between two assets, R1 and R2 is

   ρ(R1,R2)=Cov(R1,R2)/(σ1xσ2)

6. Coefficient of Variation (CV)= σ/μ or $\sigma/E(R)$

Where

μ= mean, and

E(R) = Expected Return

B. Measures of Investment Performance

1. Sharpe Ratio= (Ri-RFR)/σi

Where **Ri** = Average rate of return of portfolio **i**.

RFR= The average rate of return on a risk-free asset

σi = the standard deviation of the rate of return for portfolio **i**.

2. Sortino Ratio= (Ri-τ)/Dri

Where, **Ri**= Expected return of portfolio **i**.

τ=the minimum acceptable threshold return specified for the relevant time period.

DRi=the downside risk coefficient for Portfolio **i** during the specified time period.

C. Stock Valuation

1. Dividend Discount Model (DDM)

V=D/(k-g)

Where

V=intrinsic value of a stock

D= Annual Dividend per share

k=cost of equity (or discount rate)

g= growth rate of dividends.