National University of Science and Technology

Think in Other Terms

FACULTY OF COMMERCE

DEPARTMENT OF FINANCE

MASTER OF SCIENCE DEGREE IN FINANCIAL ENGINEERING

Quantitative Risk Analysis and Management (CFE 5203)

Assignment One (Due 01 October 2023)

Collect Five years of exchange rate/currency (including cryptocurrencies) data of your choice from either Yahoo Finance or Investing.com.

a) Calculate log returns
b) Fit the following models in R
   i. Weibull distribution and estimate the Value at Risk and Expected Shortfall.
   ii. Exponential distribution and estimate the Value at Risk and Expected Shortfall.
   iii. Generalised Extreme Value Distribution (GEVD) and estimate the Value at Risk and Expected Shortfall.
   iv. Generalised Pareto Distribution and estimate the Value at Risk and Expected Shortfall.

Hint: Use the VaRES package for b) i. and b) ii., and evir package for b) iii., and b) iv.