FINANCIAL ECONOMETRICS AND EMPIRICAL FINANCE - MODULE 2

Mock Question 1 (total 16 points, out of 50 from 3 questions)
Time Advised: 22 minutes (for this question)

Question 1.A (13 points)
Write in formal terms an AR(p) model with $p \geq 1$, making sure to explain what each term represents and whether each term is an observable random variable, a latent shock, or a parameter; also explain the economic intuition for the model, if any. What does it mean, both in logical and in statistical terms, that an AR(p) time series process is *stationary*? Assuming stationarity, make sure to discuss what the relevant *population* moments of the process are, also providing a few examples of the corresponding closed-form formulas.

Question 1.B (2 points)

Using the lag operator L, write an AR(2) process in "lag operator-polynomial" form and discuss how would you go about testing whether the process is stable and hence stationary. Will the resulting stationarity, if verified, be strong or weak? Make sure to explain your reasoning.

Question 1.C (1 point)

Consider the following data and the corresponding sample ACF:
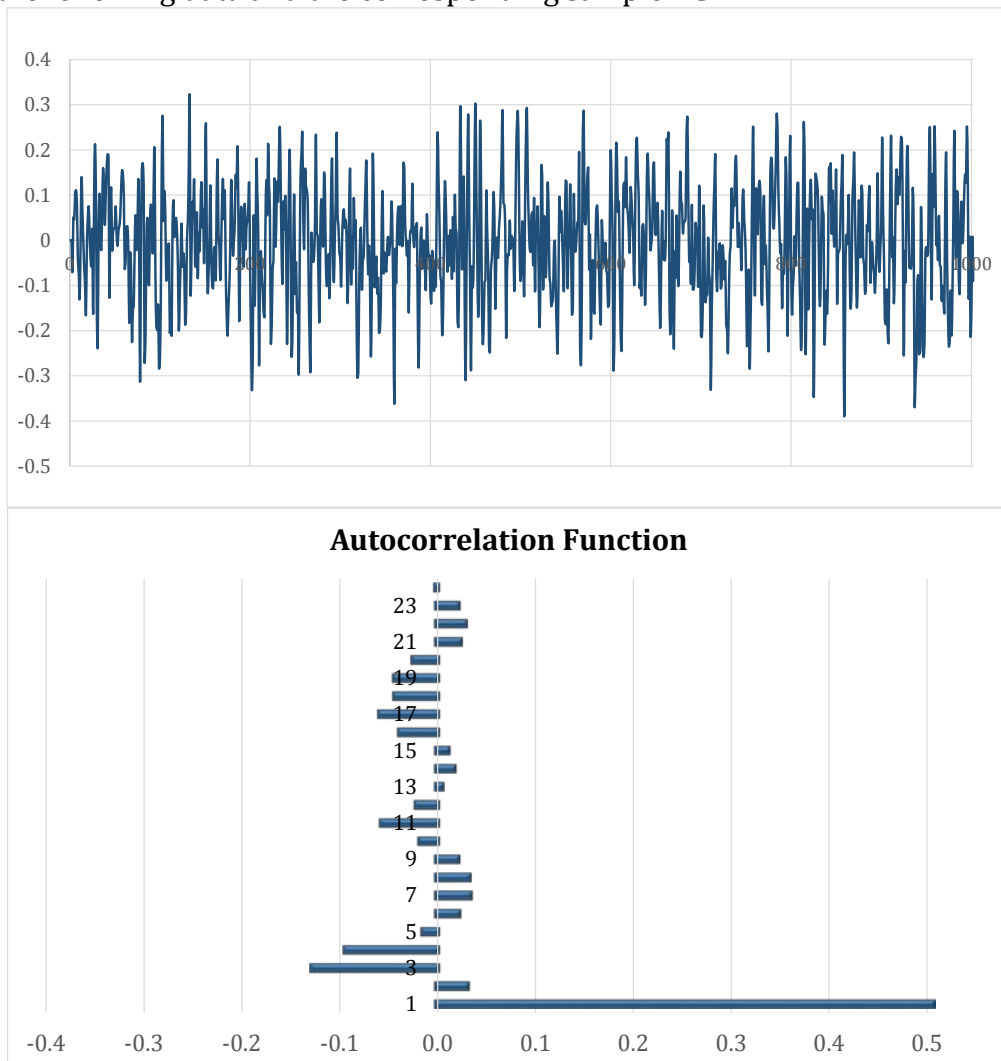
What is the most likely type of ARMA(p, q) process that may have originated this SACF? What other type of information would you be needing in order to make sure of your answer? Make sure to carefully justify your arguments.