

1. (a) Define autocovariance function, No. _____

(b) Is a random walk process covariance stationary? Justify your answer.

(c) How does the autocorrelation function of $y_t = .5x_t - .4x_{t-1} + z_t$ where $z_t \sim WN(0,1)$ look like?

(d) Write down the model of moving average of order 4. How many autocorrelations do you obtain for this model?

(e) $y_t = .5x_t - .4x_{t-1} + z_t$
where $z_t \sim WN(0,1)$.

Find out second order partial autocorrelation.

5x2=10

2. For a generalized linear process

$$x_t = z_t - .25z_{t-1} + .4x_{t-1}$$

find first two ψ weights and first two π weights.

3

3. Show that $MAC(1) \equiv AR(\infty)$

3

4. For $AR(2)$ model construct

a difference equation of autocorrelation. Find ρ_1, ρ_2 and $v(x_t)$.

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