Rubric · Assignment 4

1.

- Verify that the IMA model is invertible, Just saying $|\lambda|<1$ is not enough. Write down reason. 0.5
- Prove the form of $X_t = \sum_{j=1}^{\infty}(1-\lambda)\lambda^{j-1}X_{t-j} + w_j$ without large step jump 0.5

2. (a) showing all nesseseny steps to prove $Y^T_{T+j} = \delta(1+\phi+\cdots+\phi^{j-1}) + \phi^j Y_T$, either by induction or by using definition. 1

(b) You should use Y^T_{T+j} from (a) to show the expression of X^T_{T+m}. Marks deducted if vast steps missing during the prove. 1

(c)
- Show recurssion relation of ψ_j^* for all j without any vast missing steps. Clearly show the expansion of the series. 0.5
- Show the expression of P^T_{T+m} using ψ_j^* and what happen if T is large. 0.5

3.
- Model diagonisis for AR(1) in code with proper plots
- Model diagonisis for ARMA(1,2) in code with plots

0.75+0.75

Interpretation in language 0.5

4.
- A good fit SARIMA model shown with code and plot 0.75

- Forecast result with code and plot result — 0.75
- Interpretation in language — 0.5

5.
- A good fit SARIMA model with code shown — 0.75
- Forecast shown for next 4 quarters with plot — 0.75
- Interpretation in english language. — 0.5