**Time Series Summary** (Represented to Doctor : Bassant El-kalzah )

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model 🡪** | **AR(1)** | **AR(2)** | **MA(1)** | | **MA(2)** |
| **White noise** |  | | | | |
| **Deviation Form** |  |  |  |  | |
| **Original data Form** |  | | | | |
| **Backward Operator** |  |  |  |  | |
| **Mean** |  |  |  |  | |
| **Variance** | 𝑟ceise ratorary | + 2  + | + |  | |
| **1st Auto covariance** | = |  |  | **Note**: | |
| **2nd Auto covariance** | =  = = | = |  | **Note**: | |
| **Kth Auto covariance** |  |  | For all k ≥ 2 | For all k ≥ 3 | |
| **1st Autocorrelation** | = | = | = | = | |
| **2nd Autocorrelation** | = | = | = | = | |
| **Kth Autocorrelation** | = |  | k ≥ 2 | k ≥ 3 | |
| **ACF Graph** |  | |  |  | |
| **PCF Graph** |  |  |  | | |
| **Condition of Stationarity (Invertability for MA)** | * < 1 | * **&** * **&** < 1   **Or**  **For**  **Roots 🡪 X1 , X2 > 1** | * < 1 | * **&** * **&** < 1   **Or**  **For**  **Roots 🡪 X1 , X2 > 1** | |
|  | **Time Series – To be represented to Dr. Somia Said** | | | |  |
| **Model 🡪** | **SAR(1)** | **SMA(1)** | **SARMA(1,1)** | | **ARMA(1,1)** |
| **White noise** |  | | | | |
| **Deviation Form** |  |  |  |  | |
| **Original data Form** |  | | | | |
| **Backward Operator** |  |  |  |  | |
| **Mean** | **(deviation)** | **(deviation)** | **(deviation)** | **(deviation)** | |
| **Variance** | 𝑟ceise ratorary | + | = | = | |
| **1st Auto covariance** | = |  |  |  | |
| **2nd Auto covariance** | =  = = |  | *+* | *+* | |
| **Kth Auto covariance** | For all k ≥ 2 | For all k ≥ 2 | For all k ≥ 2 | For all k ≥ 2 | |
| **1st Autocorrelation** | **=** | **=** | **=** | **=** | |
| **2nd Autocorrelation** | **=** | **=** | **=** | **=** | |
| **Kth Autocorrelation** | **=** | **k ≥ 2** | **k ≥ 2** | **k ≥ 2** | |
| **ACF Graph** |  |  |  | | |
| **PCF Graph** |  |  |
| **Condition of Stationarity (Invertability for MA)** | * < 1 | * < 1 | * < 1 * < 1 | * < 1 * < 1 | |