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| **Ministry of Higher Education and Scientific Research****Salahaddin University-Erbil****College of Administration & Economics** **Department: Statistics and Informatics**  |  | **Subject: Time Series****Postgraduate Studies: Master****Time: 1.30 hours****Date: 21 / 1 /2024** |
| **Final Exams - First Semester: First Trial** **2023 – 2024** **Theoretical Aspect** |

**Q.1 /** The moving average process of order *q* is denoted MA(*q*) and defined by



prove that:



 **(10 Marks)**

**Q.2 /** Prove that  is an unbiased estimator of the spectrum,  and 

**(5 Marks)**

**Q.3 /** In Double Exponential Smoothing for the linear time series: 

And when t → ꝏ, prove that:

, where 

**(10 Marks)**

**Good Luck**

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| Assist. Prof. Dr. Bekhal Samad SedeeqHead of Department |  |  | Prof. Dr. Taha Hussein AliExaminer |

