

MAI0142
Hand in Problems – 1

1. Generate data from $\mathbf{X} \sim N_{p,n}(\boldsymbol{\mu}, \boldsymbol{\Sigma}, \boldsymbol{\Psi})$, where $\boldsymbol{\Sigma}$ and $\boldsymbol{\Psi}$ are singular. Suppose that $p = 10$ and $n = 15$. Moreover, verify (not mathematically) via simulations that the generated data corresponding to random variables follow a matrix normal distribution.
2. Let $\mathbf{X} \sim N_{p,n}(\mathbf{0}, \boldsymbol{\Sigma}, \boldsymbol{\Psi})$. Show that all moments of odd order equal $\mathbf{0}$. Derive all cumulants.