

## Problem 5

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$$\gamma(t) = E[\phi(\omega)\phi(t)]$$

$$= E[u \cdot v]$$

$$= E[u \cdot v] - E[u] \cdot E[v] \quad (\because E[u] = E[v] = 0)$$

$$= \text{cov}(u, v)$$

$$= \begin{bmatrix} \sigma_u^2 & \sigma_{uv} \\ \sigma_{vu} & \sigma_v^2 \end{bmatrix}$$