1. Let \( x(t) \) be a Poisson process with rate \( \lambda \).

Calculate the power spectrum \( P_x(\omega) \) of \( x = x_\lambda - \beta \).

[ If \( x \) is subtracted to get \( \xi(t) < x(t) > = 0. \]}

Calculate the bispectrum \( B_x(\omega_1, \omega_2) \).

2. Shot noise:

Let \( y_\lambda(t) \) be the result of passing the above \( x_\lambda(t) \) through a linear filter \( G \),

with impulse response \( C(t) \).

Find the P.S. of \( y = y_\lambda(t) - < y_\lambda(t) > \).

3. Connectivity: Given independent noises \( x(t), y(t), z(t) \):

\[ x(t) \xrightarrow{\mathbb{S}} G \rightarrow g(t) \]

\[ y(t) \xrightarrow{\mathbb{S}} H \rightarrow h(t) \]

\[ z(t) \xrightarrow{\mathbb{S}} \]

\[ \text{Find } P_G, P_H, \text{ or } G, H \text{ known.} \]