Information Theory and Coding

Provide the formula for the Discrete Fourier Transform. [4 marks]

Show how it is possible to split the transform of $2M$ points into two transforms of $M$ points. Hence derive the number of complex multiplications and divisions required for the Fast Fourier Transform of $2^N$ points. [12 marks]

Explain the memory requirements of the Fast Fourier Transform. [4 marks]