CONVOLUTION

Problem 3

a) The filter h_1 is convolved with the filter h_2 so as to produce the filter h_3. Determine the Fourier-transform of h_2 given that:
the Fourier-transform of h_1 is $4 + 2\cos(u+v) + 2\cos(u-v)$ and h_3 is defined in the spatial domain as the operator:

3	2	6	2	3
2	18	12	18	2
6	12	36	12	6
2	18	12	18	2
3	2	6	2	3

The sampling distance equals 1 and the filters are not being normalized.