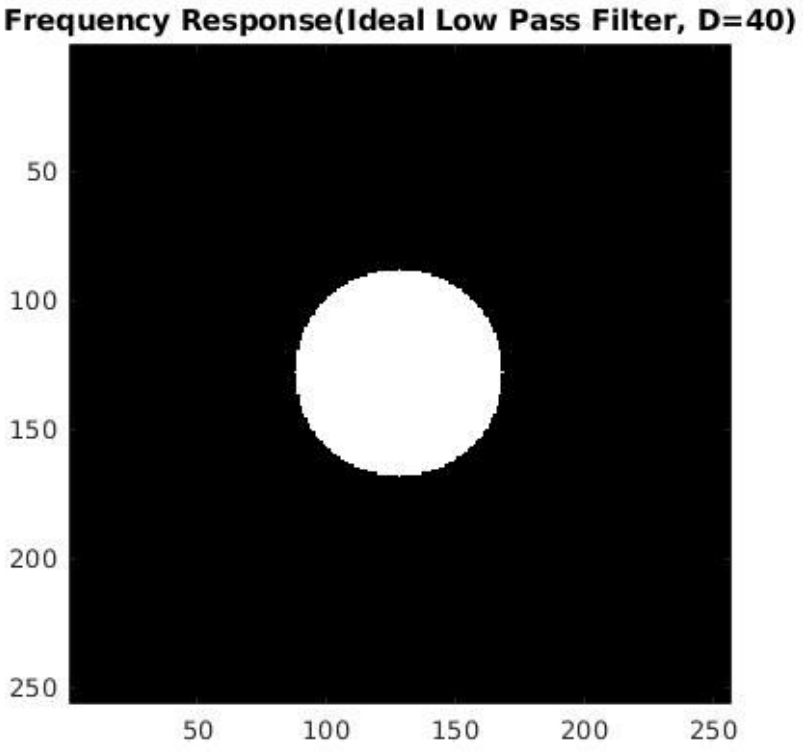
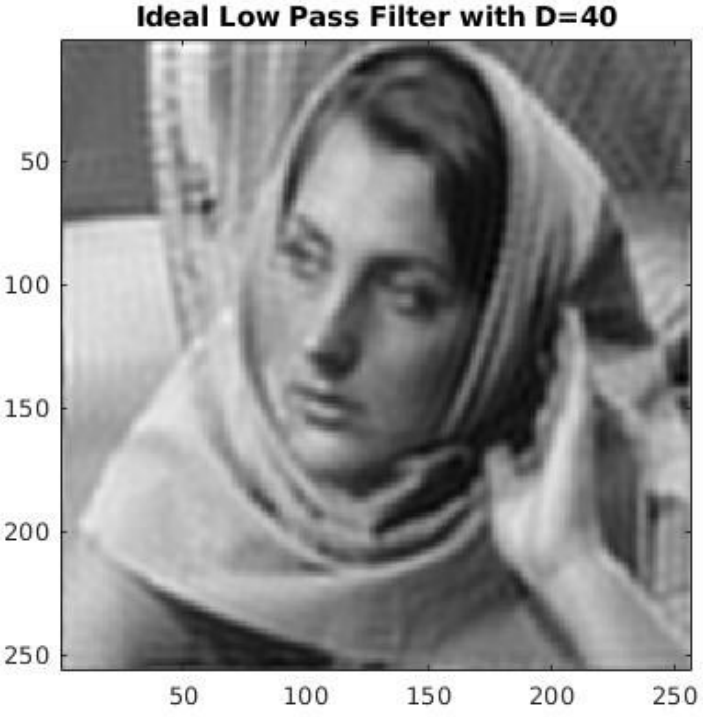
Q4)

a) Ideal low pass filter(D = 40)

i) Frequency response

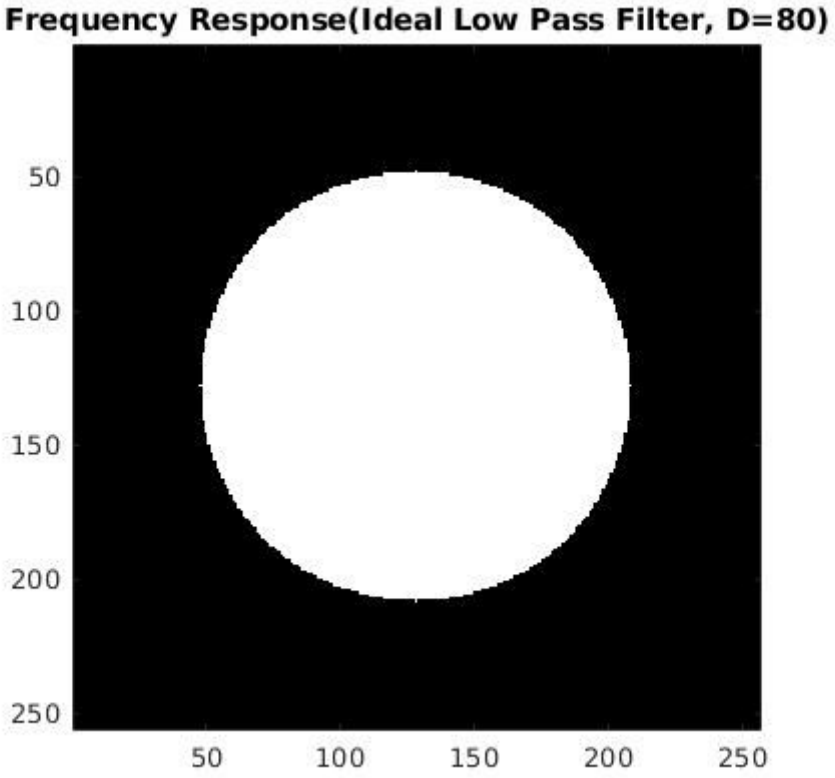


ii) Filtered image

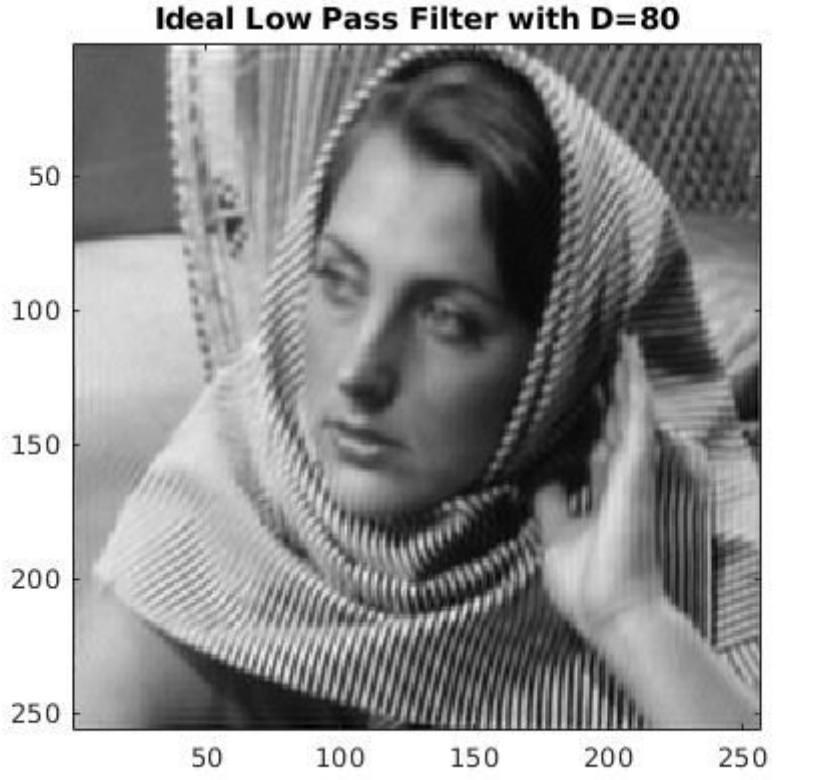


b) Ideal low pass filter(D = 80)

i) Frequency response

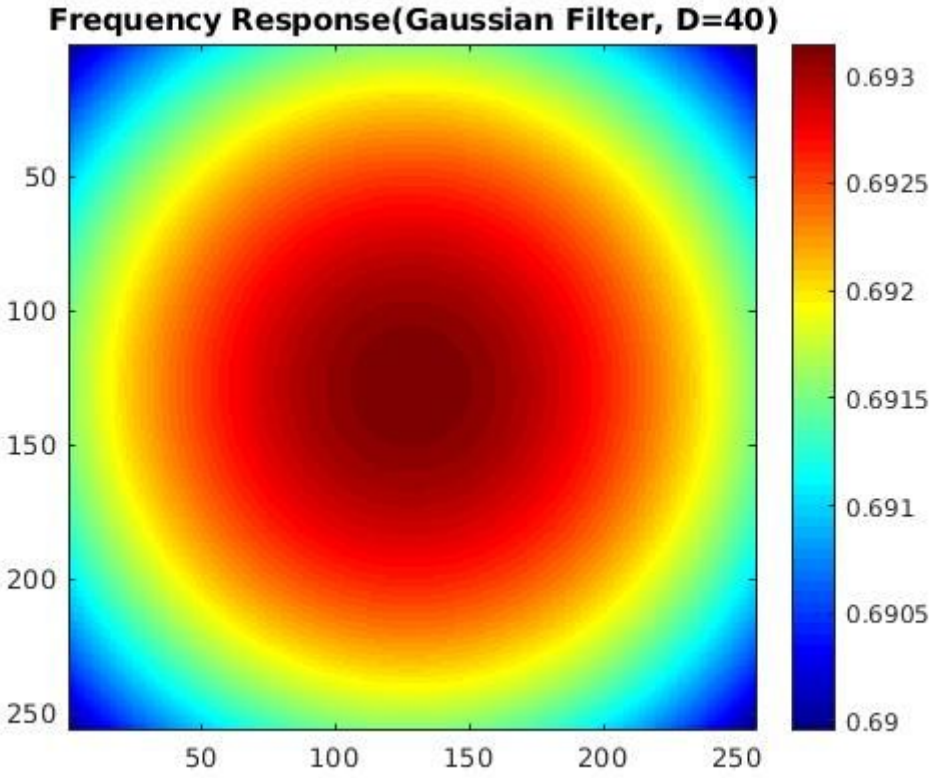


ii) Filtered image

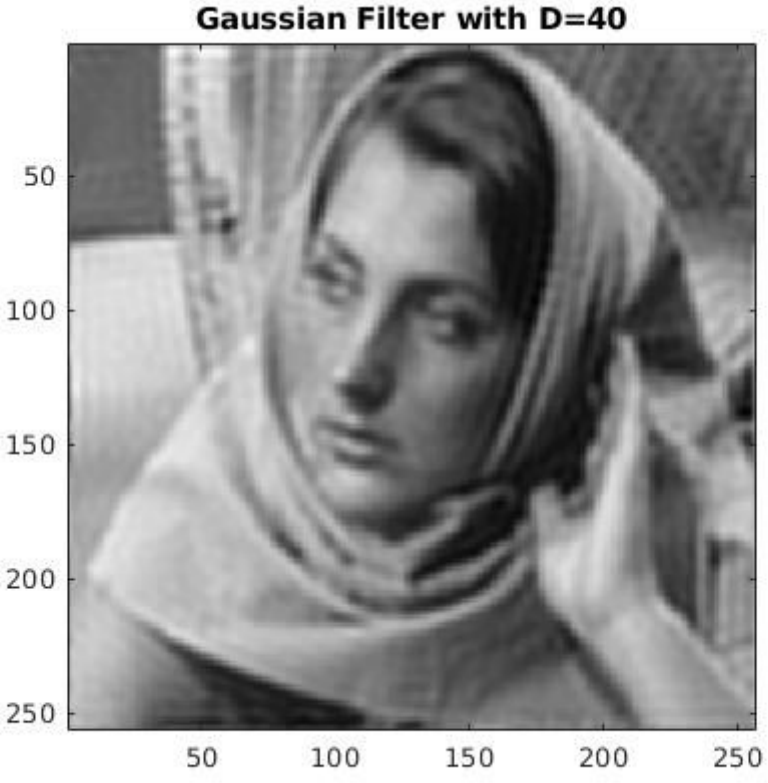


c) Gaussian filter(σ = 40)

i) Frequency response

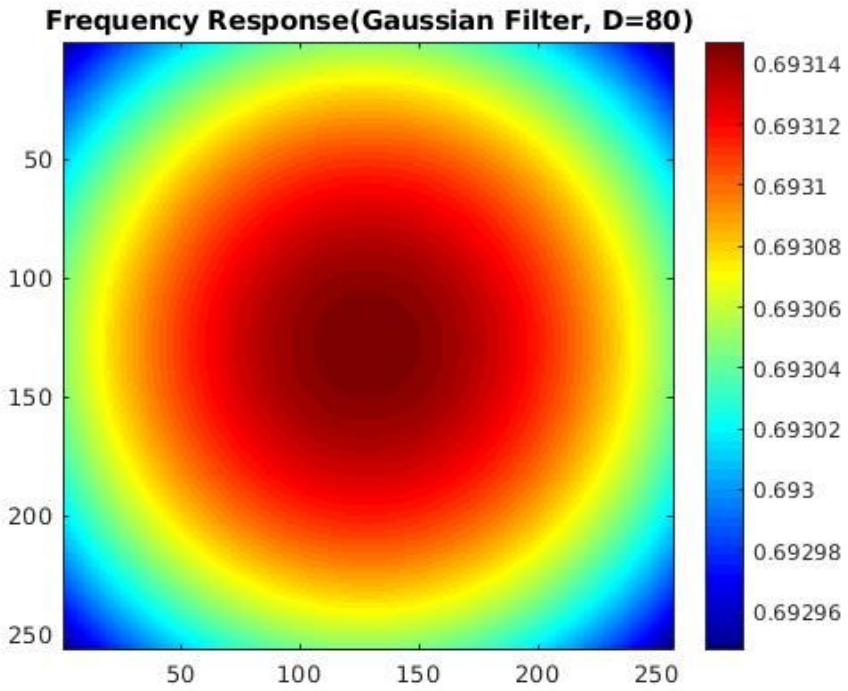


ii) Filtered image

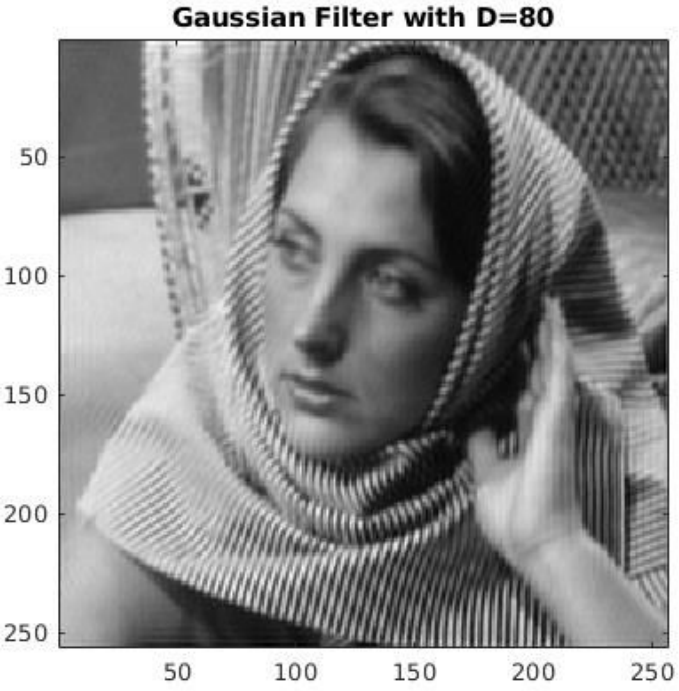


d) Gaussian filter(σ = 80)

i) Frequency response



ii) Filtered image



- The quality of images is better when D is increased for the ideal low pass filter.
- For the gaussian low pass filter, the quality increases as σ increases.
- The ringing artifacts are clearly seen when ideal low-pass filter is applied whereas they are negligible in case of the gaussian low-pass filter.