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Q1.

(b) Yes the phase plot is linear.

(d) Transition band is shorter for rectangular window, compared to Blackman window, and the side lobe level is higher in rectangular window compared to Blackman window.

(f) The phase is liner, it is an anti-symmetric filter.

Q2.

(a) The condition for causality is that the ROC should be Right sided, and for stability all the poles must be inside a unit circle.

(d) Now the stability and causality of the system depends upon the ROC of the system.

1. For the FIR filter, we have one pole, i.e $|z| = 0$.
   Therefore, the system is stable and casusal.
2. For the IIR filter we have a pole at $|z| = r0$, r0<1;
   For ROC < r0, the system is stable and causal, for ROC > ro, the system is stable and causal.

(f)For the FIR response the magnitude of DFT of output signal is different from the input signal, therefore, it acts like a notch filter but also changes the magnitude, but in case of IIR filter the DFT of output is nearly same as input, it acts like a better notch filter.