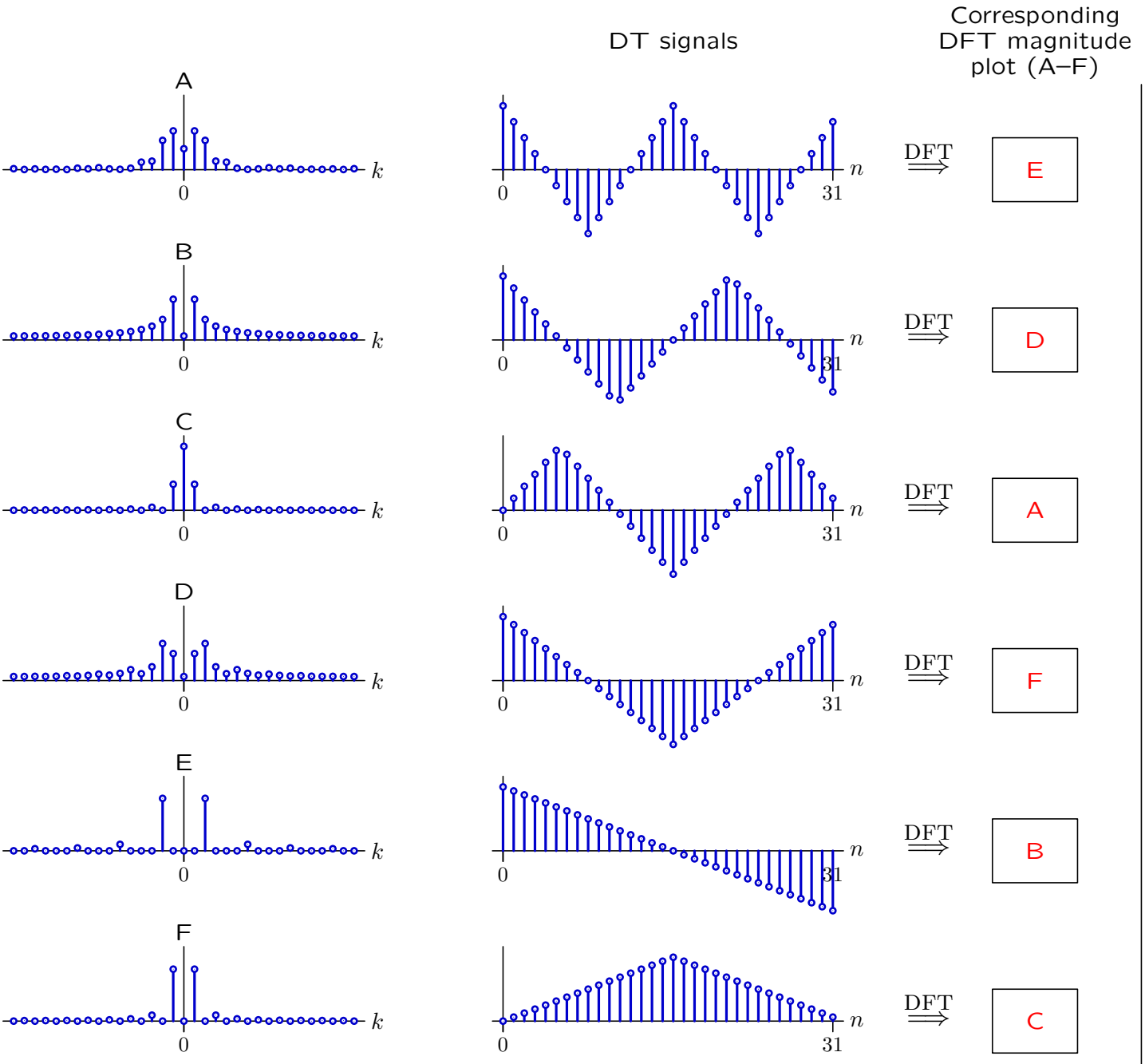
More Discrete Fourier Transforms The left column below shows six discrete-time signals for $0 \leq n \leq 31$.
The right column shows plots of the magnitudes of six DFTs computed for $N = 32$.
For each discrete-time signal in the left column below, find the matching DFT magnitude (one of plots A–F) and enter its letter in the box provided.



The top signal shows two full cycles of a triangle wave. Therefore the fundamental frequency of the triangle wave falls at $k = 2$. There could also be harmonics of $k = 2$ (i.e., at $k = 4, 6, 8, ...$).

$\rightarrow$ plot E

The next two signals show 1.5 full cycles of a triangle wave. Therefore the magnitude will peak between $k = 1$ and $k = 2$. If the first of these is periodically extended, it will have a big discontinuity between periods. The second of these has a much smaller discontinuity. Also, the DC value of the second is much larger than the first.

→ the second signal corresponds to plot D

→ the third signal corresponds to plot A

The fourth signal shows 1 full cycle of a triangle wave. Therefore $k = 1$.

→ plot F

When periodically extended, the fifth signal will be a sawtooth with $k = 1$. There will also be a large discontinuity at the period boundaries, so that will generate contributions at nearby k's.

→ plot B

When periodically extended, the last signal will make a triangle wave at $k = 1$. Notice however that there is a large DC component.

→ plot C