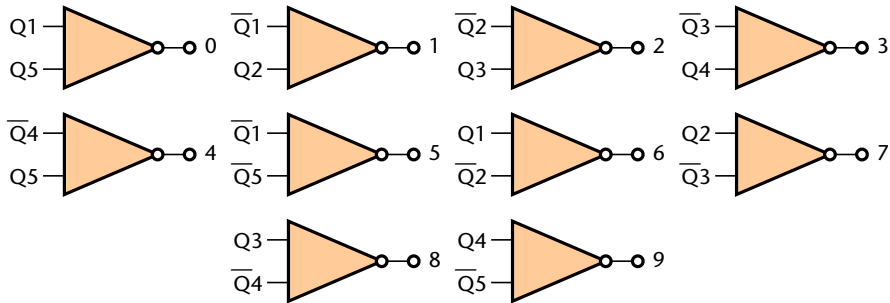
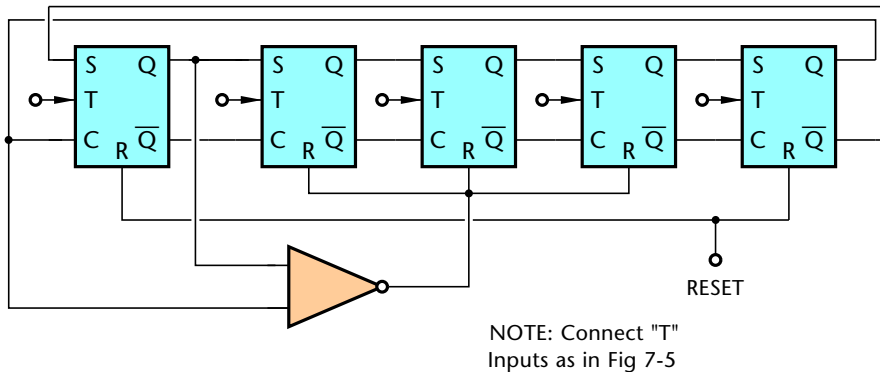


the output ahead of it during subtraction. The add bus is normally positive; its inversion is normally grounded. Either the look-ahead or look-behind gate is inhibited, depending on the add-subtract command.



(A) Use of two-input gates to decode into ten lines.



(B) Use of zero decoding to eliminate disallowed states.

**Fig. 7-6. Decoding of walking-ring decade counters.**

JK flip-flops may be used by first converting them into Type-D flip-flops by providing an inverter between the S and C inputs. This change requires five extra inverters, as shown in Fig. 7-7B.

### Programmable-Divide Walking Ring

The programmable-divide circuit using a walking ring counter needs the basic ring, a single-pole, ten-position selector switch, and a full monostable for resetting (Fig. 7-8). The selector switch determines which negative going transition will trip the monostable, produce an output, and reset the counter to state zero. A full monostable is needed because one half of the selected outputs will go positive upon reset, creating a self-annihilating coincidence. The counter can be decoded in the normal manner if desired.