3.13 The best way to tackle this problem is to label the intermediate gates, and calculate their outputs first.

F = \overline{A \cdot B}

G = A + B

16a) \( F = B \cdot C + A \cdot C \) covers the on-set, but has a 1 hazard.
16b) \( F = B \cdot \overline{C} + \overline{A} \cdot C \cdot \overline{D} + A \cdot \overline{B} \cdot D + B \cdot C \cdot D \) covers the on-set
\( F = B \cdot D + C \cdot D + A \cdot \overline{B} \) is hazard free in SOP.

16c) \( F = (A + B) \cdot (\overline{B} + C) \) has a 0 hazard
\( F = (A + B) \cdot (\overline{B} + C) \cdot (A + C) \) doesn’t.

16d) Maxterms(0,1,3,5,7,8,9,13,15)
Use POS and circle \( \overline{C} \cdot D \) as a redundant, or use SOP
\( F = B \cdot D + C \cdot D + A \cdot B \cdot C \)