

### Solution of HW 4

(1) Faulty functions for the circuit corresponding to the two faults are:

$$I(c \rightarrow s-a-0) = b(\overline{ab}) = b\overline{a}$$

$$I(f \rightarrow s-a-1) = (a+b)\overline{a} = b\overline{a}$$

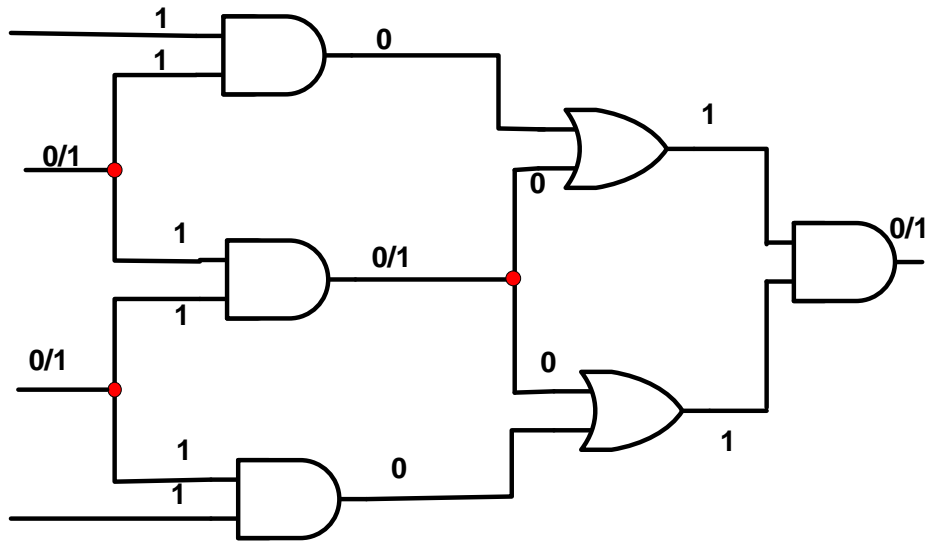
(2) Faulty functions corresponding to the two faults are:

$$Z(c \rightarrow s-a-1) = \overline{ab}$$

$$Z(f \rightarrow s-a-1) = \overline{ab}$$

The two faulty functions are indistinguishable and hence the faults are equivalent.

(3)



$$\text{Collapse Ratio} = 20/32 = 0.625$$