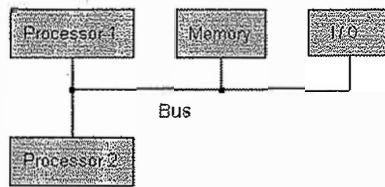
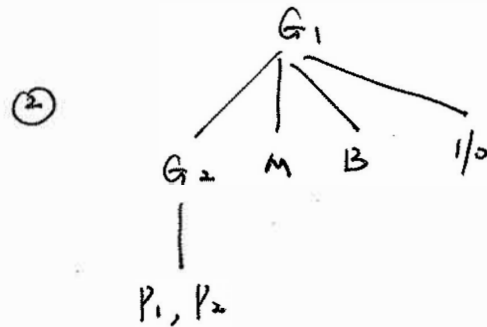
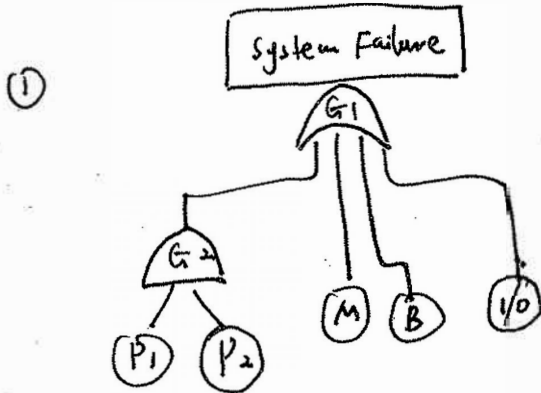


The System is operational iff 1 processor, memory, I/O and bus are functioning



- Find fault tree model of the system
- Find the minimal cut sets
- Find the system unreliability formula using the I/E method or SDP method, assuming the reliability of each component as follows
 - Two processors have the same reliability: p
 - Memory: m
 - I/O: d
 - Bus: b



$$C_1 = \{M\} \quad C_2 = \{B\} \quad C_3 = \{I/O\}$$

$$C_4 = \{P_1, P_2\}$$

③ $U_{sys} = P_r \{C_1 \cup C_2 \cup C_3 \cup C_4\}$

I/E: $U_{sys} = \sum_{i=1}^4 P_r \{C_i\} - P_r \{C_1 \cap C_2\} - P_r \{C_1 \cap C_3\} - P_r \{C_1 \cap C_4\} - P_r \{C_2 \cap C_3\} - P_r \{C_2 \cap C_4\} - P_r \{C_3 \cap C_4\} + P_r \{C_1 \cap C_2 \cap C_3\} + P_r \{C_1 \cap C_2 \cap C_4\} + P_r \{C_1 \cap C_3 \cap C_4\} + P_r \{C_2 \cap C_3 \cap C_4\} - P_r \{C_1 \cap C_2 \cap C_3 \cap C_4\}$

$2^4 - 1 = 15$ items

SDP: $U_{sys} = P_r \{C_1\} + P_r \{\bar{C}_1 C_2\} + P_r \{\bar{C}_1 \bar{C}_2 C_3\} + P_r \{\bar{C}_1 \bar{C}_2 \bar{C}_3 C_4\}$

4 items