

SIT111 - Task 1.3P Truth Table to Canonical Representation

- Formulate the relevant Boolean expression, in Canonical Form for the truth table given below. Do not simplify the expression.

P	Q	R	F (P, Q, R)	
0	0	0	1	$P'Q'R'$
0	0	1	0	
0	1	0	1	$P'QR'$
0	1	1	0	
1	0	0	1	$PQ'R'$
1	0	1	0	
1	1	0	0	
1	1	1	1	$P'Q'R'$

- Combine the minterms using OR operations

$$f(P,Q,R) = (P' * Q' * R') + (P' * Q * R') + (P * Q' * R') + (P * Q * R)$$

$$f(P,Q,R) = (\text{NOT}(P) \text{ AND } \text{NOT}(Q) \text{ AND } \text{NOT}(R)) \text{ OR } (\text{NOT}(P) \text{ AND } (Q) \text{ AND } \text{NOT}(R)) \text{ OR } ((P) \text{ AND } \text{NOT}(Q) \text{ AND } \text{NOT}(R)) \text{ OR } ((P \text{ AND } (Q) \text{ AND } R))$$