

Time: 90 minutes

M.M: 30

All questions are compulsory and carry equal marks.

Q.1 Solve the following function using Q.M method. $Y = \sum m(0,3,4,5,8,9,11,12,13,15) + d(1,2)$

Q.2 Minimize and design the circuit using multiple output k-maps for the following outputs.

$F1 = \sum m(2,5,6,7,8,10,12,13,14,15)$, $F2 = \sum m(5,8,9,10,11,12,13,14,15)$ and $F3 = \sum m(2,6,7,9,11,13,15)$

Q.3 Encode data bit 1101 into even parity hamming code. If received data is 1000101, then which bit encountered the error?

Q.4 Find the test-set for fault detection and location using fault table method for the circuit shown in Fig.1

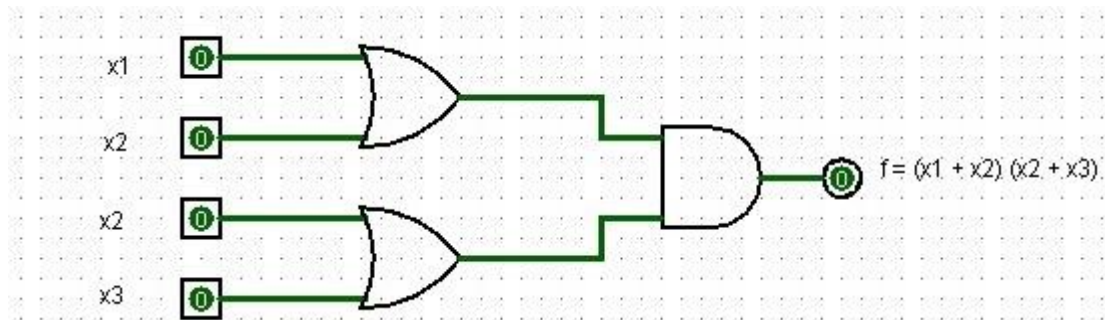


Fig.1

Q.5 Minimize the function $f(x_1, x_2, x_3, x_4) = x_1x_2x_3' + x_1'x_2x_3 + x_1x_2'x_3' + x_1x_3x_4$ using the iterative consensus method and also verify using iterative consensus tabular method.