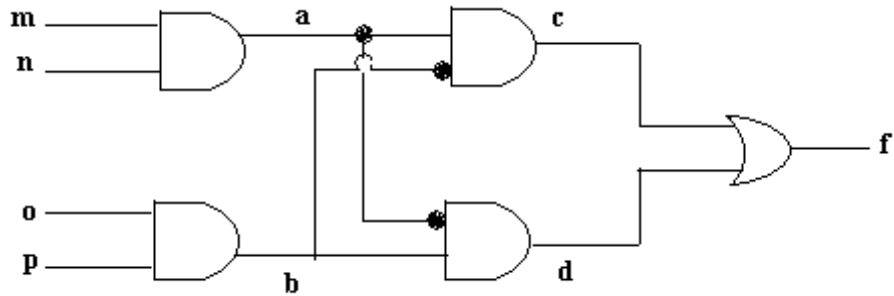


III B.Tech I Semester Supplementary Examinations, April/May 2005
DIGITAL SYSTEMS DESIGN
(Electronics & Computer Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Write a short notes on cubical operations explain with example.
(b) With the help of maps, determine if the following cubes are wholly with on the function, $f = 0112 + 1002 + 1221 + 2112$
 - i. 2122
 - ii. 1001
 - iii. 2221
 - iv. 1212
2. (a) Explain the different basic elements which are used in ASM charts.
(b) Draw the ASM charts for
 - i. JK Flip Flop
 - ii. T Flip Flop
 - iii. Demultiplexer
3. (a) Write the PAL programming table for Binary to Gray code converter.
(b) Write the capabilities and limitations of finite state machines.
4. (a) Define:
 - i. α -cube
 - ii. Dominating & dominated row
 - iii. Degree of adjacency.
(b) Find the CAMP II print out of the function $f(abcde) = \Sigma (0,1,3,5,7-10,13-15,21,25,29)$
5. (a) Explain the properties which are involved in Boolean difference method.
(b) Realize the function, $e = a^1d + b^1c + ad^1$
6. In the gate n/w shown in fig below only wires a, b, c and d may become either s-a-o or s-a-1 while the remaining wires are considered "safe".
 - (a) Construct a fault table
 - (b) Find a minimal cover of table and use it to determine a minimal fault detection experiment.
 - (c) Find a present Fault-location exp. And show its fault dictionary.



7. (a) Find the shortest homing sequence for the machine shown in table.

P _s		NS, Z	
	I_1	I_2	I_3
S_1	$S_1, 0$	$S_1, 0$	$S_1, 0$
S_2	$S_3, 0$	$S_2, 0$	$S_2, 0$
S_3	$S_2, 0$	$S_4, 0$	$S_3, 0$
S_4	$S_4, 0$	$S_3, 0$	$S_4, 1$

- (b) Define the terms:
- Homing sequence
 - Distinguishing sequence.

8. Write short notes on:

- PLA folding
- Test generation
- Built on self test.
