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P1.

A.

CAD stands for Computer Aided Design. It is software which allows engineers of physical products design, test, and redesign all types of products without the need or the cost of actually building physical prototypes.

B.

PCB stands for Printed Circuit board which houses one or more logic circuits. The text describes three different types: Standard Chips, Programmable Logic Devices and Custom Designed Chips.

C.

PLD stands for Programmable Logic Device and is a specific type of PCB. PLDs can usually be reprogrammed any number of times and are ideal for a wide range of applications.

D.

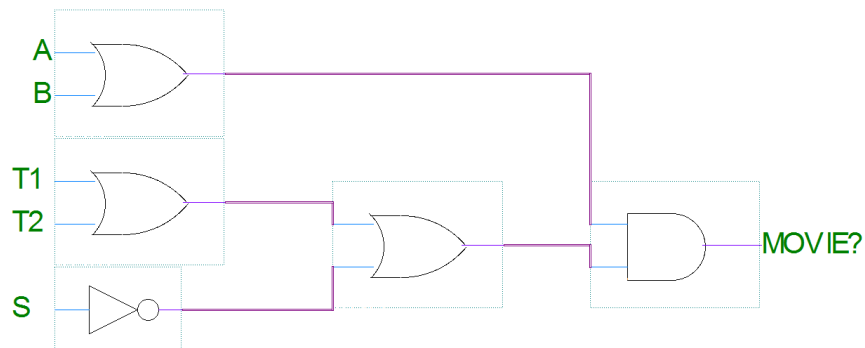
FPGA stands for Field-Programmable Gate Array and is a sophisticated and specific type of PLD. FPGAs, arranged as a two-dimensional structure (hence the name array), contain several hundred million transistors and are connected with programmable switches.

P2.

- A. Assuming the word 'expensive' means monetary loss, in our opinion, prototype implementation-testing-verification looping is relatively more expensive compared to initial design-simulation-verification looping because the latter can be looped many times at a cost of the software and electricity. The former on the other hand requires physical items to be purchased and assembled. After many loops this type of the loop can get very expensive—exponentially expensive if one of the prototype's parts is abnormally high priced.
- B. These loops can be avoided at the cost of producing a part that may not work correctly and or at all. It is always a good idea to test what is being developed many times before it is shifted into production.

P3.

We assume 'S = 1' means the movie is sold out.

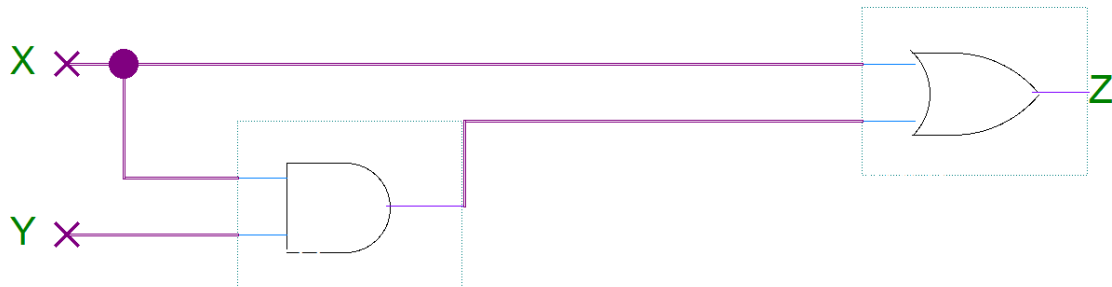


All these combinations of variables below will allow you to see the movie.

A	B	T1	T2	S	Movie?
0	1	0	0	0	1
0	1	0	1	0	1
0	1	0	1	1	1
0	1	1	0	0	1
0	1	1	0	1	1
0	1	1	1	0	1
0	1	1	1	1	1
1	0	0	0	0	1
1	0	0	1	0	1
1	0	0	1	1	1
1	0	1	0	0	1
1	0	1	0	1	1
1	0	1	1	0	1
1	0	1	1	1	1
1	1	0	0	0	1
1	1	0	0	1	1
1	1	0	1	0	1
1	1	0	1	1	1
1	1	1	0	0	1
1	1	1	0	1	1
1	1	1	1	0	1
1	1	1	1	1	1

P4.

A.



B.

X	Y	Result (Z)
0	0	0
0	1	0
1	0	1
1	1	1

C.

We found that Y does not influence the answer, only x does.

P5.

A.) $F(a,b,c) = !A \cdot B \cdot C + !A \cdot B \cdot !C + A \cdot C$

B.)

A	B	C	Result
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1