

# Design Technologies for Integrated Systems – EPFL

## Homework 3

Assigned: 11/10/2018

Due: Tuesday 18/10/2018

## Problem 1

Given the sequencing graph in Fig.1:

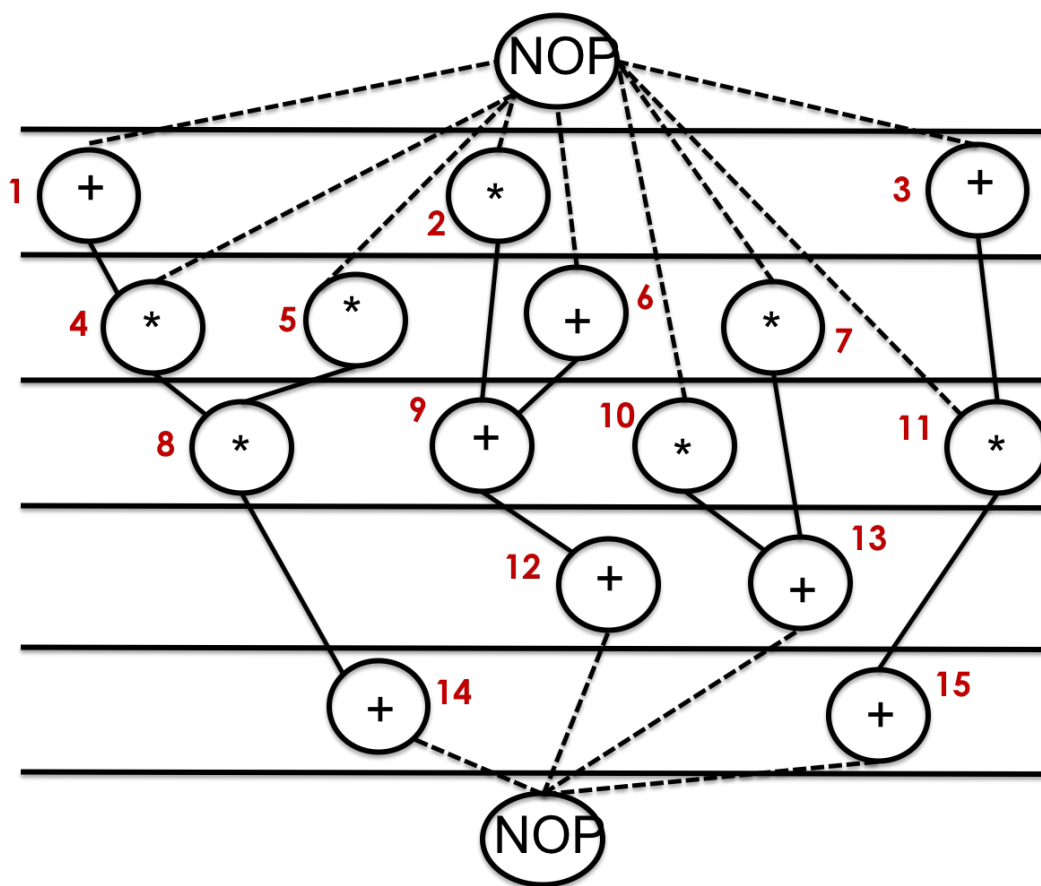


Figure 1: Sequencing graph.

(a) Draw the conflict/interval graphs for both multiplier and adder operations.

- (b) Determine the minimum number of resources for the multiplier and adder by using the left-edge algorithm.

## Problem 2

Given the following Boolean function:

$$F = a'b'c'd + ac'd + ac'd' + abcd' + a'c$$

- (a) Draw the min-terms on the cube.  
(b) List all the primes (also on the cube).  
(c) List all the essential primes.

## Problem 3

Given the following Boolean function:

$$F = ab'c' + abc' + a'b'c'd + abcd$$

- (a) Check if F is negative or positive unate in the variables a, b, c and d.  
(b) Is F negative or positive unate?