

QUIZ 3

4pts

1. a) CFGs are useful for:

- understanding concepts of computational power (more powerful than RE, less powerful than TM)
- understanding concepts related to parsing: they are used to describe the syntax of programming languages
- etc.

b) $S \rightarrow aS | bS | \epsilon \quad (a/b)^*$

2pts

2. Yes. The PDA would work like: $S \rightarrow aSd | T$ - push a if you see an a $T \rightarrow bTc | bc$

10pts

3. let rec adjacents listN =

match listN with

$(h::i::t) \rightarrow \text{if } h=i \text{ then } [h] \text{ else } \text{adjacents}(i::t)$
 $| (h::[]) \rightarrow [-1]$
 $| [] \rightarrow [-1]$

$\}$ 6
 $\}$ 2
 $\}$ 2

;;

6pts

4. let rec myMap f listM =

match listM with

 $(h::t) \rightarrow (f h)::(\text{myMap } f t)$ $| [] \rightarrow []$

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