

# Theory of Automata

## Assignment # 02

### Pushdown Automata

1. Construct a Pushdown Automata (PDA) for language  $L = \{ 0^n 1^m 2^m 3^n \mid n \geq 1, m \geq 1 \}$
2. Construct a PDA for language  $L = \{ 0^m 1^{(n+m)} 2^n \mid m, n \geq 0 \}$  and prove that it does NOT accept the input: 00000112222
3. Construct a PDA for language  $L = \{ a^{(2^*m)} c^{(4^*n)} d^n b^m \mid m, n \geq 0 \}$  and give the output for the following inputs as accepted or not accepted:
  - i. aacccdb
  - ii. aaaacccccccddbb
  - iii. acccddb