## National University of Computer and Emerging Sciences

## Theory of Automata(Section A,B,C,D,E)

## Fall2012: Mid 2

**16 November, 2012**

**Total Time: 1:30 Hrs Total Marks: 50**

**Subjective Exam Time: 1:15 Hrs**

**Problem 1**[5 points] Identify if the given language regular or non regular? Build its FA if its regular otherwise prove via pumping lemma.

## Problem 2[20 points]

Part 1) Construct a context-free grammar over the alphabet ∑= {a,b} for following language

Part 2) Build a PDA to accept the following language

**Problem 3**[10 points] Convert the grammar below into Chomsky Normal Form. Show all steps.

S --> SAB | ε

A --> 0S1 | CD | ε

B --> 1S0 | ε

C --> BC | AC | 0

D --> CD