

## **United International University (UIU)**

Dept. of Computer Science & Engineering (CSE)

CSE-2233, Theory of Computation - Class Test-4 (F,G)

Time: 35 minutes (SET-2)

**1.** Convert the following *CFG* to *Chomsky Normal Form (CNF):* 

3

$$S \rightarrow ASB$$

$$A \rightarrow aAS \mid a \mid \varepsilon$$

$$B \rightarrow SbS \mid A \mid bb$$

2. Construct a *Push Down Automata (PDA)* for the following languages:

3+4

a) 
$$L = \{ c^{2n} \% d^{3n} \mid n \ge 1 \}$$
 where,  $\sum = \{c, d, \%\}$   
b)  $L = \{ 0^m 1^n 2^k \mid m, n, k \ge 1, \text{ where m=k or n=m } \}$