SSN COLLEGE OF ENGINEERING, KALAVAKKAM – 603 110
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
B.E. Computer Science and Engineering
CS6503 THEORY OF COMPUTATION

Date: 11.08.2017, 8.00-9.30 AM **UNIT TEST – 2** **Max. Marks: 50**
Academic Year: 2017-2018 ODD **Batch: 2015-2019**
Semester: 5 **Faculty: Dr. S. Kavitha / Ms. A. Beulah**

Qn. No	Part – AAnswer any FIVE (5 * 2 = 10)	Marks	(KL,COn)
1	Define Context free grammar with an example.	2	K1,CO1
2	Find L(G) for the grammar with the productions S→aB, B→b, B→bA, A→aB	2	K3,CO2
3	What are the different types of language acceptances by a push down automata and define them.	2	K1,CO1
4	Construct the CFG representing the set of all palindromes over (0+1)*	2	K3,CO2
5	Does a PDA has memory? Justify.	2	K3,CO1
6	What do you mean b y null production and unit production? Give an example.	2	K2,CO1
7	Let G be the CFG with the productions S→aB|bA, A→a|aS|bAA, B→b|bS|aBB. For the string w = aaabbabbba find leftmost derivation.	2	K3,CO2

Part – B Answer any FOUR (4 * 10 = 40)

8.	a)Construct PDA for the given language using final state. $\{ww^R \mid w \in (0,1)^*\}$	6	K3,CO1
	b)What is an Instantaneous Description of a PDA? Show by ID that the PDA accepts the string 1001.	4	K3,CO1
9	a) Define ambiguous grammar.	2	K1,CO2
	b) Show that the grammar S→aSbS|bSaS|ε is ambiguous and what is the language generated by this grammar?	8	K3,CO2
10	Let G = (V, T, P, S) is a CFG then prove that the terminal string w is in the language of variable A, then there is a parse tree with root A and yield w.	10	K2,CO2
11	a) Define CNF.	2	K1,CO2
	b) Given the CFG G, find G' in CNF generating the language L(G)-ε S → AACD A→aAb| ε C→aC | a D→aDa |bDb | ε	8	K3,CO2
12	a) Define GNF.	2	K1,CO2
	b) Given the CFG G, find G' in GNF generating the language L(G) S → AB A → BS|b B → SA |a	8	K3,CO2
13.	a) a)Construct PDA for the given language by empting the stack $\{a^n b^{3n} \mid n >= 1\}$.	6	K3,CO1
	b) Check whether the following strings are part of above language using ID. abb, aabbbbbb	4	K3,CO1

************B E S T O F L U C K************

Prepared by	
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Reviewed by HoD, CSE