BVM College of Management Education, Gwalior

Question Bank

MCA 304

Theory of Computationn

Unit I & II

Q   Question : Attempt very short notes

(a)   Define Pushdown Automata

(b)   Define Turing Machine

 (c)   Define Chomsky Normal Form

(d)   Define Greibach Normal Form.

Question : Attempt short notes

(a)   Explain the Ambiguity in Context free Grammars.

(b)   What do you mean by the Derivation Tree? Explain with example.

(c)   Explain the Elimination of Null production with example.

Question : Attempt Long Answer type Question

1. Construct a reduced grammar equivalent to the grammar
    S→ aAa, A→ Sb/bCC/DaA. C → abb /DD,
    E → ac, D→ aDA

2 Let G be S→ AB
    A→ a. B → C Ib
    C→ D
    D→ E and E → a. Eliminate
    unit productions and get an equivalent grammar.

3 Let G be S→ AB, A→ a. B→ C /b, C→ D, D→ E and E→ a. Eliminate
    unit productions and get an equivalent gramm

4.   Reduce the following grammar G to CNF. G is S→aAD, A→ aB / bAB,
         B→ b. D → d.

5.   Construct a grammar in Greibach normal form equivalent to the grammar
S→t AA / a. A→SS/b.

Convert the grammar S→ AB, A→ BS/b, B→ SA/a into GNF.

6.   Construct a pda A accepting $L = \{wew^T, w\mathcal{E}\{a. b\} *\}$ by final state.

7.   Construct a pda A equivalent to the following context-free grammar:
S→OBB. B→ 0S/1S/ O. Test whether 010^4 is in N(A).

8   Design a Turing machine *M* to recognize the language
{1"2"3" }where n≥ I.

9.   What do you mean by linear bounded automata?