Submission Date: DD/MM/YY

Subject Name with Code: Theory of Automata and Formal Languages (KCS-402)

1. Define PDA. Draw the graphical representation for PDA.
2. Design a PDA which accepts set of balanced paranthesis ({ { } }).
3. Construct a PDA that accepts L = { ww^R | w = (a+b)* }
4. Construct PDA to accept L= {$0^n 1^n$ | n => 0}.
5. Construct a PDA from the following CFG.
   G = ({S, X}, {a, b}, P, S) where the productions are −
   S → XS | ε , A → aXb | Ab | ab
6. What is Push Down Automata (PDA)? Design the PDA for the language
   L = {wcw^R │ w∈ {a,b}*}
7. Differentiate between deterministic PDA (DPDA) and non-deterministic PDA (NPDA) with suitable example. Also discuss two stack PDA with example.
8. Construct a PDA equivalent to the following CFG productions:
   S→aAA, A→aS│bS│a.
9. Explain Two Stack PDA.
10. Design a PDA for the following language: L = {$a^i b^j c^k$ | i = j or j = k}
11. Design a PDA for the Language L ={WW^R | W={a,b} * }
12. Generate CFG for the given PDA M is defined as
    M = ({q_0 , q_1}, {0,1} {x, z_0 }, δ, q_0 , z_0 , q_1) where δ is given as follows:
    δ (q_0 ,1, z_0) = (q_0 , xz_0)
    δ (q_0 ,1, x) = (q_0 , xx)
    δ (q_0 ,0, x) = (q_0 , x)
    δ (q_0 , ε, x) = (q_1 , ε)
    δ (q_1 , ε, x) = (q_1 , ε)
    δ (q_1 ,0, x) = (q_1 , xx)
    δ (q_1 ,0, z_0) = (q_1 , ε)
13. Discuss briefly about the Push Down Automata (PDA).
14. What do you mean by Two stack Pushdown Automata?
15. Convert the grammar S → aAA, A → a |aS| bS to a PDA that accepts the same language by Empty stack.
16.