SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
M.Sc.Computer Science - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - I
23PCSCT1001 - Theory of Computation

Total Duration : 2 Hrs. 30 Mins.   Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks$)$

1. Illustrate the Automata with complexity using an example.

2. Explain the notation for CFG derivation.

3. Apply the CYK algorithm to the input "ababaa" and the grammer
   S->AB|BC , **A->BA|a**, **B->CC|b**, **C->AB|a**.
   Computer the table of entries **Xij** = the set of non terminals i through j, inclusive
   of the string "ababaa".

4. Describe the graphical representation of DFA.

5. Illustrate the equivalence of regular expression with finite automata.

6. Relate ambiguity resolution in YACC.

7. Explain the code for Turing machine.

8. Distinguish the DFA and NDFA.

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks$)$

9. Describe the reduction to definition with an example.

10. Apply the idempotent law and distributive law for solving regular expressions.

11. Determine the formal definition of pushdown automata.

12. Examine the notation for Turing machine.

II - Compulsory question $(1 \times 10 = 10$ Marks$)$

13. Determine the post's correspondence problem for undecidability.

******