Worksheet-1

1.

Eliminate left recursion and left factoring in the following grammar:

X → Ya | b | c
Y → Yc | Yd | a
Z → aZX | bXc | aZc

2.

Check the following grammar is ambiguous or not by parsing the input string "**a(a)aa**":

A→ AA
A → (A)
A → a

3.

Compute FIRST() and FOLLOW() for the grammar:

S → ABCD
A → a | ε
B → CD | b
C → c | ε
D → Aa | d

Compute FIRST() – 2 marks
Compute FOLLOW() – 2 marks

4.

Find LEADING() and TRAILING() for all the non-terminals in the following grammar:

A → A – B | B
B → B / C | B
C → C * D | D
D → (A) | x | y

5.

Find the canonical collection of LR(0) items for the following grammar:

S → aS | bS

6.

Consider the grammar:

A → pqC | pBs | pAD
B → qB | ε
C → s | ε
D → p | q | ε

Check whether the following inputs are accepted or not by the grammar using recursive decent parsing:

i) pqqp - 6 marks
ii) ppqqss - 6 marks

7.

Consider the following grammar:
S → (L) | a
L → L,S | S
Construct operator precedence parsing table using Leading and Trailing, precedence graph and precedence function

8. Election commission has announced the MLA election for Kanchipuram constituency. In view of this, applications are invited for the MLA election nomination. A candidate should produce proof for Age, Qualification, and any Work experience. The basic criteria for age limit is Age>20 and Age<50. The academic qualification can be UG or PG or Diploma or no qualification. Then, it includes whether the candidate has a work experience or not. Construct CFG for the given scenario and parse the below input strings using Shift Reduce parsing.
Input:
i) 31 dip no
ii) 20 ug yes

9.

Consider the following grammar:
S → L = R | R
L → *R | id
R → L
Construct the SLR parser table for the grammar. Show action of the parser, for the input string ***id=id**