

**Compiler Construction – Assignment-03**

**Left Recursion, Left Factor and Recursive Descent Parsing**

**Instructions for Submission**

**25 Marks**

**Submission Date: 04-December-2025.**

**Submission Guidelines:**

- Submit files in **Handwritten format**

You are asked to write an assignment to detect and remove both direct and indirect left recursion and eliminate left recursion and rewrite the grammar in simplified form. After simplifying grammar write the pseudo code your own words describing recursive descent parsing.

Assignment should be submitted in **handwritten on my desk.**

a)  $A \rightarrow xyzP \mid xyzQ \mid xyzR \mid uvw$

$$P \rightarrow ab \mid cd$$

$$Q \rightarrow ef \mid gh$$

$$R \rightarrow ij \mid kl$$

b)  $S \rightarrow Sx \mid Sxy \mid a \mid b$

$$A \rightarrow Abc \mid Ade \mid f$$

c)  $E \rightarrow E + T \mid T$

$$T \rightarrow T * F \mid F$$

$$F \rightarrow ( E ) \mid id$$

d)  $A \rightarrow B \ a \mid A \ a \mid c$

$$B \rightarrow B \ b \mid A \ b \mid d$$

e)  $B \rightarrow B \parallel J \mid J$

$$J \rightarrow J \&& E \mid E$$

$$E \rightarrow E == A \mid A$$

$$A \rightarrow A + T \mid T$$

$$T \rightarrow id \mid ( B )$$