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CD: COMPILER DESIGN

INSTRUCTOR: Ms. SHWETA TIWARI

shwetatiwari08@recabn.ac.in
shwetatiwari08aug@gmail.com
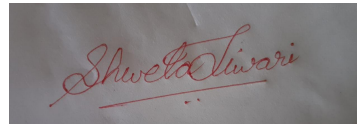
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TOPIC On : QUESTION ON-

Left Recursion, Left Factoring, FIRST() AND FOLLOW()

1. QUESTION ON- *Eliminate Left Recursion*

1. Consider the following grammar and eliminate left recursion-

   A → ABd / Aa / a

   B → Be / b

2. Consider the following grammar and eliminate left recursion-

   E → E + E / E x E / a

3. Consider the following grammar and eliminate left recursion-

   E → E + T / T

   T → T x F / F

   F → id

4. Consider the following grammar and eliminate left recursion-

   S → (L) / a

   L → L , S / S

5. Consider the following grammar and eliminate left recursion-

   S → S0S1S / 01

6. Consider the following grammar and eliminate left recursion-

   S → A

   A → Ad / Ae / aB / ac

   B → bBc / f

7. Consider the following grammar and eliminate left recursion-

   A → AAα / β

8. Consider the following grammar and eliminate left recursion-

   A → Ba / Aa / c

   B → Bb / Ab / d

9. Consider the following grammar and eliminate left recursion-

   X → XSb / Sa / b

   S → Sb / Xa / a

10. Consider the following grammar and eliminate left recursion-

    S → Aa / b

A → Ac / Sd / ∈

2. QUESTION ON- *Eliminate Left Factoring*

1. Do left factoring in the following grammar-

   S → iEtS / iEtSeS / a

   E → b

2. Do left factoring in the following grammar-

   A → aAB / aBc / aAc

3. Do left factoring in the following grammar-

   S → bSSaaS / bSSaSb / bSb / a

4. Do left factoring in the following grammar-

   S → aSSbS / aSaSb / abb / b

5. Do left factoring in the following grammar-

   S → a / ab / abc / abcd

6. Do left factoring in the following grammar-

   S → aAd / aB

   A → a / ab

   B → ccd / ddc

3. QUESTION ON- *Find FIRST( ) And FOLLOW( )*

1. Calculate the first and follow functions for the given grammar-

S → aBDh

B → cC

C → bC / ∈

D → EF

E → g / ∈

F → f / ∈

2. Calculate the first and follow functions for the given grammar-

S → A

A → aB / Ad

B → b

C → g

3. Calculate the first and follow functions for the given grammar-

S → (L) / a

L → SL'

L' → ,SL' / ∈

4. Calculate the first and follow functions for the given grammar-

S → AaAb / BbBa

A → ∈

B → ∈

5. Calculate the first and follow functions for the given grammar-

E → E + T / T

T → T x F / F

F → (E) / id

6. Calculate the first and follow functions for the given grammar-

S → ACB / CbB / Ba

A → da / BC

B → g / ∈

C → h / ∈