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Course Code: CSE 331, Course title: Compiler Design

Quiz: 01   . Date: 19-10-2020

Ans to the question No - A

Given that,

$E \rightarrow DD$

$D \rightarrow FJ | CF | aD | cD$

$F \rightarrow ab | ad | J$

$J \rightarrow \pi a | a\pi | \varepsilon$

or,

$E \longleftrightarrow DD$

$D \rightarrow FJ$

$D \rightarrow cF$

$D \rightarrow aD$

$D \rightarrow cD$

$F \rightarrow ab$

$F \rightarrow ad$

$F \Longrightarrow J$

$J \rightarrow \pi a$

$J \rightarrow a\pi$

$J \rightarrow \varepsilon$

Formal : detination :

$$G = (V, \mathcal{E}, P, S)$$

$$V = \{ E, D, F, J \}$$

$$\mathcal{E} = \{ ab, ad, \pi a, a\pi, \varepsilon \}$$

$$P = \{ E \rightarrow DD, D \rightarrow FJ \mid cF \mid aD \mid cD,$$
$$F \rightarrow ablad \mid J, J \rightarrow \pi a l a \pi \mid \varepsilon \}$$

$$S = \{ E \}$$

(Ans)

Aus to the question no-6

Given String = abracadra

Using Given Instruction:

LMD: E → DD
    → FJD
    → abJD
    → abra D
    → abracD
    → abracFJ
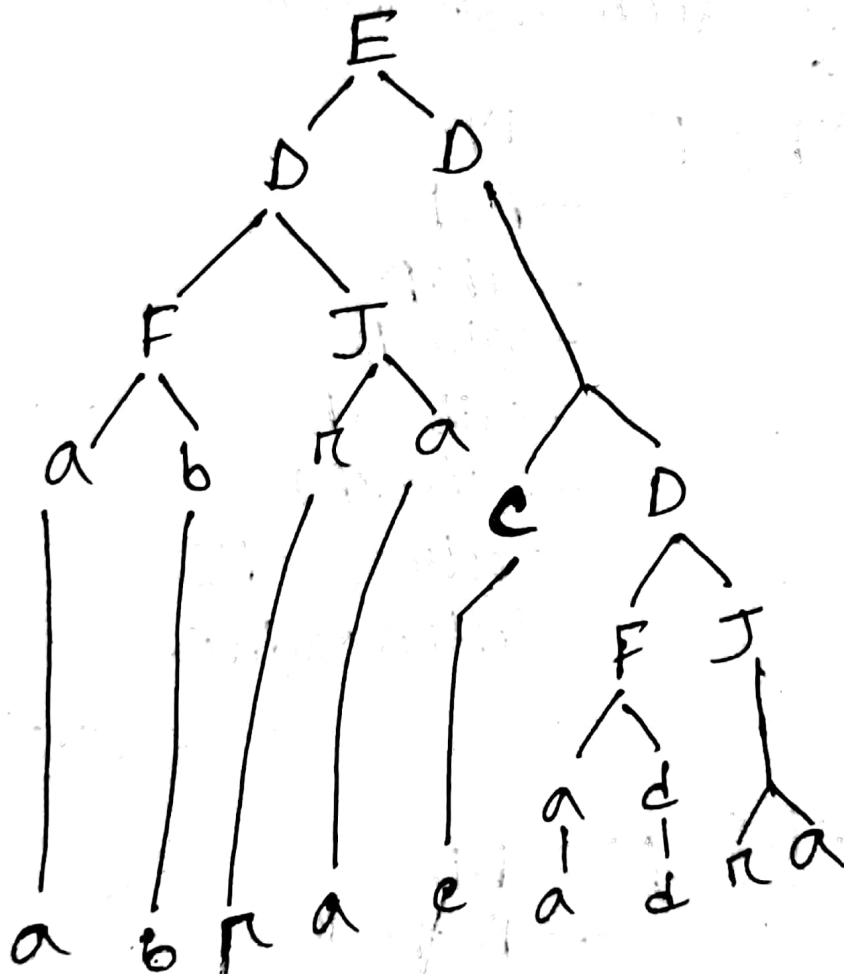   → abrac ad J
    → abra cadra

           Ans

RMD: E → DD
    → DcD
    → DcFJ
    → ~~DcadJ~~
    → ~~Dcadra~~
    → DcFra
    → ~~Dcf~~
    → Dcadra
    → FJcadra
    → F racadra
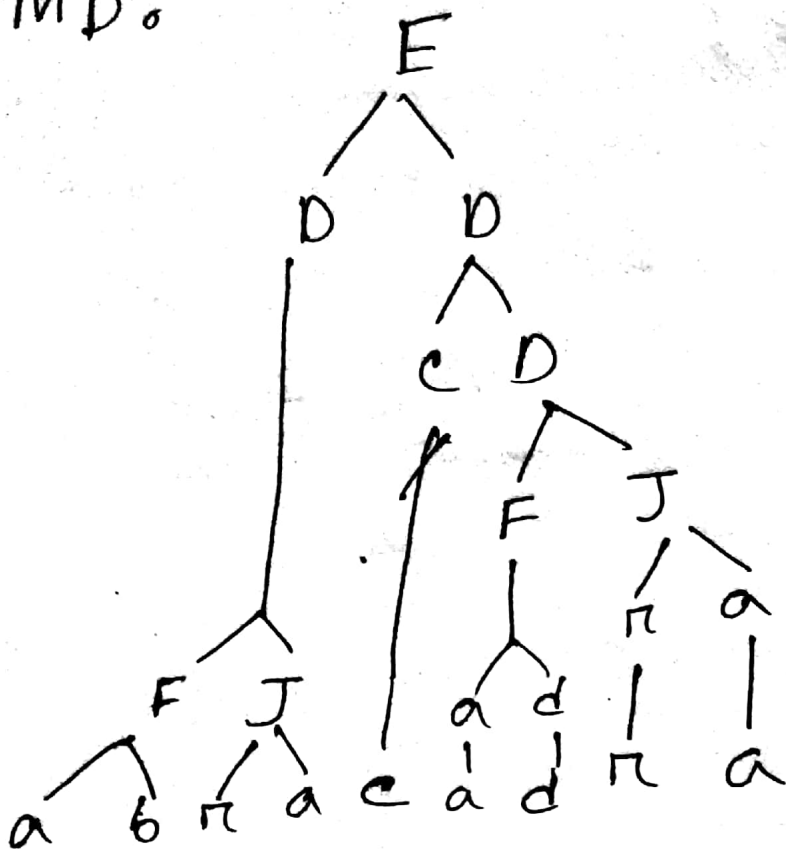   → abracadra (Ans)

Drawing the parse tree for above derivation:

LMD:
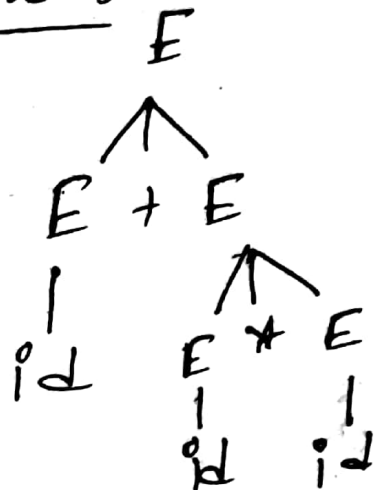

Ans

RMD:

Aus

Aus to the question no-d

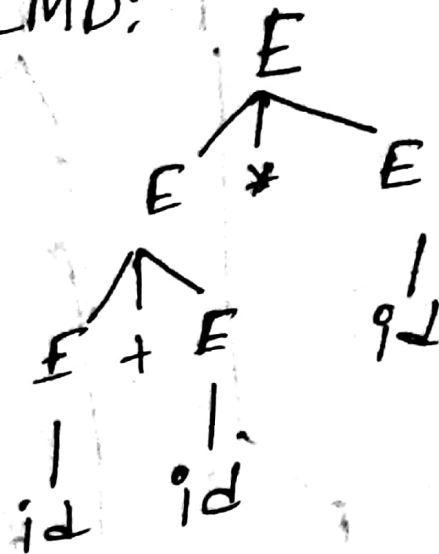**Aus:** The given string is no the grammar ambiguous.

We know, A grammar that produces more than one parse tree for any input sentance is said to be an ambiguous grammar.

For example : ID + ID * ID

RMD:

E
├─ E + E
│ ├─ id
│ └─ E * E
│   ├─ id
│   └─ id

LMD:

E
├─ E * E
│ ├─ E + E
│ │ ├─ id
│ │ └─ id
│ └─ id

this type of input is ambiguous.

So, our given string has no problem to find a value for LMD or RMD.

So, this is not ambiguous grammar.