Variant 1

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D, E\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→BC	9. C→ε
2. S→AC	6. A→aD	10. C→BA
3. A→a	7. B→b	11. E→aB
4. A→ASC	8. B→bS	12. D→abC}

Variant 2

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→aD	9. B→b
2. S→bA	6. A→ AS	10. B→bS
3. A→B	7. A→bAAB	11. C→AB
4. A→b	8. A→ ε	12. D→BB}

Variant 3

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, d\}$

P={1. S→dB	5. A→aAdAB	9. C→ε
2. S→A	6. B→aC	10. E→AS}
3. A→d	7. B→aS	
4. A→dS	8. B→AC	

Variant 4

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	6. A→bBAB	11. B→ε
2. S→bA	7. A→b	12. D→AA
3. S→A	8. B→b	13. C→Ba}
4. A→B	9. B→bS	
5. A→AS	10. B→aD	

Variant 5

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b, d\}$

P={1. S→dB	5. A→aBdB	9. D→AB
2. S→A	6. B→a	10. C→bC
3. A→d	7. B→aS	11. C→ε }
4. A→dS	8. B→AC	

Variant 6

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→BC	9. C→BA
2. S→AC	6. B→b	10. E→bB}
3. A→a	7. B→bS	
4. A→ASC	8. C→ε	

Variant 7

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, b\}$

P={1. S→bA	5. A→bAaAb	9. C→ε
2. S→B	6. B→AC	10. C→AB
3. A→a	7. B→bS	11. E→BA}
4. A→aS	8. B→aAa	

Variant 8

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C\}$ $V_T=\{a, d\}$

P={1. S→dB	5. A→aAdAB	9. B→ε
2. S→A	6. B→a	10. C→Aa}
3. A→d	7. B→aS	
4. A→dS	8. B→A	

Variant 9

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→bA	5. A→bAaAb	9. C→ε
2. S→BC	6. B→A	10. C→AB
3. A→a	7. B→bS	11. D→AB}
4. A→aS	8. B→aAa	

Variant 10

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, D\}$ $V_T=\{a, b, d\}$

P={1. S→dB	5. A→aAaAb	9. B→A
2. S→AB	6. A→ ε	10. D→Aba}
3. A→d	7. B→a	
4. A→dS	8. B→aS	

Variant 11

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→bA	5. A→AbAa	9. C→ε
2. S→AC	6. B→BbaA	10. D→AB}
3. A→bS	7. B→a	
4. A→BC	8. B→bSa	

Variant 12

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D, X\}$ $V_T=\{a, b\}$

P={1. S→A	5. X→BX	9. D→a
2. A→aX	6. X→b	10. C→Ca}
3. A→bX	7. B→AD	
4. X→ ε	8. D→aD	

Variant 13

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→bDAB	9. D→BA
2. S→DA	6. B→b	10. C→BA}
3. A→a	7. B→BA	
4. A→BD	8. D→ ε	

Variant 14

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→a	9. B→ε
2. S→A	6. B→AbB	10. C→BA
3. A→bAa	7. B→BS	11. D→a}
4. A→aS	8. B→a	

Variant 15

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→AC	5. A→ ε	9. B→bS
2. S→bA	6. A→aS	10. C→abC
3. S→B	7. A→ABab	11. D→AB}
4. S→aA	8. B→a	

Variant 16

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→abAB	5. A→b	9. B→ε
2. A→aSab	6. B→BA	10. C→AS}
3. A→BS	7. B→ababB	
4. A→aA	8. B→b	

Variant 17

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D, E\}$ $V_T=\{a, b\}$

P={1. S→aA	5. A→BC	9. C→ε
2. S→AC	6. A→aD	10. C→BA
3. A→a	7. B→b	11. E→aB
4. A→ASC	8. B→bA	12. D→abC}

Variant 18

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→aD	9. B→a
2. S→bA	6. A→ AS	10. B→bS
3. S→B	7. A→bAB	11. C→AB
4. A→b	8. A→ ε	12. D→BB}

Variant 19

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, d\}$

P={1. S→dB	5. A→aAdCB	9. C→ε
2. S→B	6. B→aC	10. E→AS}
3. A→d	7. B→bA	
4. A→dS	8. B→AC	

Variant 20

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	6. A→bBA	11. B→ε
2. S→bA	7. A→b	12. D→AA
3. S→A	8. B→b	13. C→Ba}
4. A→B	9. B→bS	
5. A→Sa	10. B→aD	

Variant 21

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b, d\}$

P={1. S→dB	5. A→aBdB	9. D→ab
2. S→AC	6. B→a	10. C→bC
3. A→d	7. B→aA	11. C→ε }
4. A→dS	8. B→AC	

Variant 22

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→BC	9. C→BA
2. S→AC	6. B→b	10. E→bB}
3. A→a	7. B→aA	
4. A→ACSC	8. C→ε	

Variant 23

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, E\}$ $V_T=\{a, b\}$

P={1. S→bAC	5. A→bCaCb	9. C→ε
2. S→B	6. B→AC	10. C→AB
3. A→a	7. B→bS	11. E→BA}
4. A→aS	8. B→aAa	

Variant 24

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C\}$ $V_T=\{a, d\}$

P={1. S→dB	5. A→aBdAB	9. B→ε
2. S→A	6. B→a	10. C→Aa}
3. A→d	7. B→dA	
4. A→dS	8. B→A	

Variant 25

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→bA	5. A→bCaCa	9. C→ε
2. S→BC	6. B→A	10. C→AB
3. A→a	7. B→bS	11. D→AB}
4. A→aS	8. B→bCAa	

Variant 26
  1.Eliminate ε productions.
   2.Eliminate any renaming.
   3.Eliminate inaccessible symbols.
   4. Eliminate the non productive symbols.
   5. Obtain the Chomsky Normal Form.
$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, D\}$ $V_T=\{a, b, d\}$

P={1. S→aBA	5. A→AbBA	9. B→A
2. S→AB	6. A→ ε	10. D→Aba}
3. A→d	7. B→a	
4. A→dS	8. B→aS	

Variant 27
  1.Eliminate ε productions.
   2.Eliminate any renaming.
   3.Eliminate inaccessible symbols.
   4. Eliminate the non productive symbols.
   5. Obtain the Chomsky Normal Form.
$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→bA	5. A→AbC	9. C→ε
2. S→AC	6. B→CbaC	10. D→AB}
3. A→bS	7. B→a	
4. A→BC	8. B→bSa	

Variant 28
  1.Eliminate ε productions.
   2.Eliminate any renaming.
   3.Eliminate inaccessible symbols.
   4. Eliminate the non productive symbols.
   5. Obtain the Chomsky Normal Form.
$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D, X\}$ $V_T=\{a, b\}$

P={1. S→B	5. X→BX	9. D→a
2. A→aX	6. X→b	10. C→Ca}
3. A→bX	7. B→AXaD	
4. X→ ε	8. D→aD	

Variant 29
  1.Eliminate ε productions.
   2.Eliminate any renaming.
   3.Eliminate inaccessible symbols.
   4. Eliminate the non productive symbols.
   5. Obtain the Chomsky Normal Form.
$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→aDADB	9. D→BA
2. S→DA	6. B→b	10. C→BA}
3. A→a	7. B→ASB	
4. A→BD	8. D→ ε	

Variant 30
  1.Eliminate ε productions.
   2.Eliminate any renaming.
   3.Eliminate inaccessible symbols.
   4. Eliminate the non productive symbols.
   5. Obtain the Chomsky Normal Form.
$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→aB	5. A→a	9. B→ε
2. S→A	6. B→BAbB	10. C→BA
3. A→aBAb	7. B→BS	11. D→a}
4. A→aS	8. B→a	

Variant 31

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→AC	5. A→ ε	9. B→AbSA
2. S→bA	6. A→aS	10. C→abC
3. S→B	7. A→ABAb	11. D→AB}
4. S→aA	8. B→a	

Variant 32

    1.Eliminate ε productions.
    2.Eliminate any renaming.
    3.Eliminate inaccessible symbols.
    4. Eliminate the non productive symbols.
    5. Obtain the Chomsky Normal Form.

$G=(V_N, V_T, P, S)$ $V_N=\{S, A, B, C, D\}$ $V_T=\{a, b\}$

P={1. S→abAB	5. A→b	9. B→ε
2. A→aBSBab	6. B→BA	10. C→AS}
3. A→BS	7. B→aBaBb	
4. A→aA	8. B→b	