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Q1: Design a grammar that describes a string of equal A’s and B’s:

ANS:

S -> ASB |BSA |SS | e

ABBA

S = SS

* SS
* ASBS [S->ASB]
* ABS [S -> e]
* ABBSA [S->BSA]
* ABBA [S->e]

Q2: Design a grammar that describes a regular expression e.g. a\* or a+a

ANS:FOR a\*

a\* = aaaa

S -> as |e | ss

S -> ss

* ass [S -> as]
* aass [S -> as]
* aas [ S -> e ]
* aaas [S -> as]
* aaaas [S -> as]
* aaaa [ S -> e ]

FOR a+a

S -> S+S | S | a

S = S

* S + S [ S -> S+S]
* a + S [ S -> a]
* a + a [ S -> a]