Sat

a4q4: a) The context free grammar induced from the ~~following~~ given trees along with the probabilities is ~~are~~ as follows:

S → WNP VP | 1
WNP → WDT NN | 0.33
WNP → Who | 0.33
WNP → WDT NN | 0.33
WDT → what | 0.5
WDT → WRB JJ | 0.5

18
Sun

VP → BE VP | 0.25
VP → VBN PP | 0.25
VP → VBZ NP | 0.25
VP → BE VB | 0.25

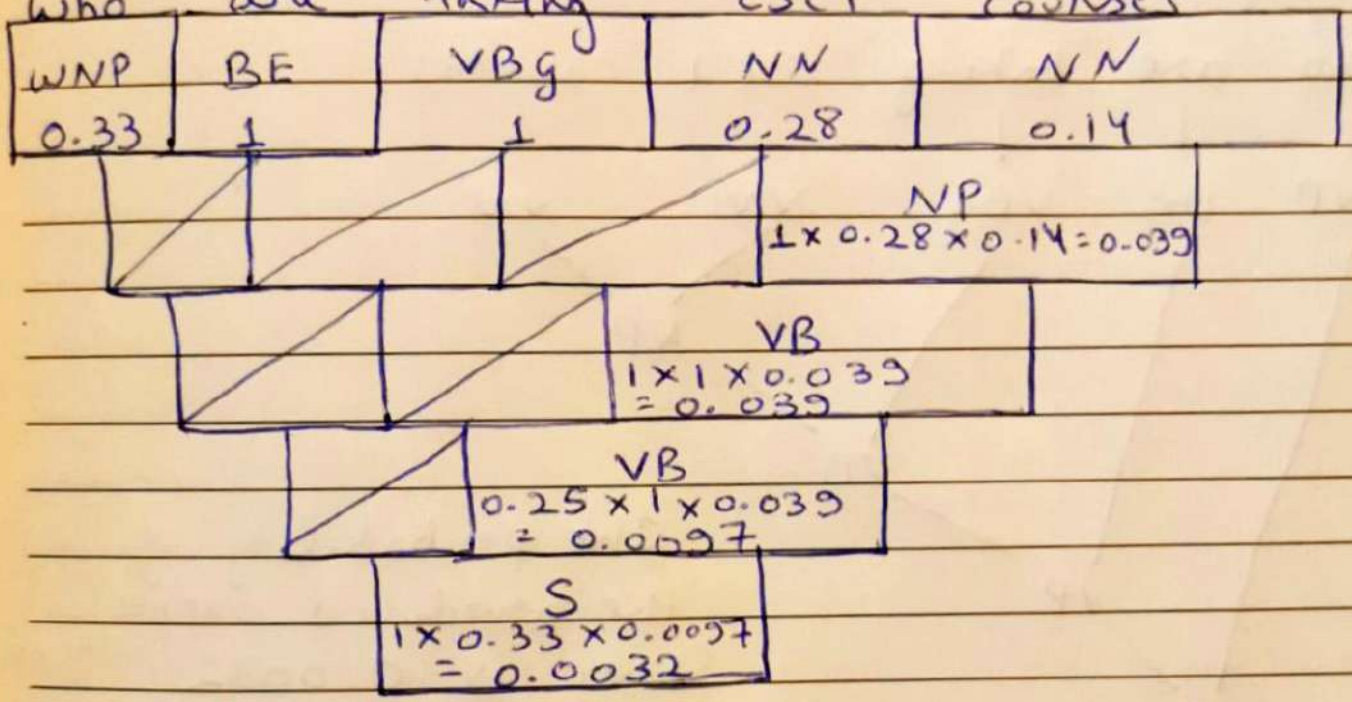
NN → courses | 0.14
NN → fall | 0.14
NN → 1100 | 0.14
NN → students | 0.14

NN → CSCI | 0.28
NN → 1108 | 0.14
PP → IN NN | 1
IN → in | 1
VBZ → teaches | 1
NP → NN NN | 1
WRB → how | 1
JJ → many | 1

VB → VBG NP | 1
VBG → taking | 1
BE → are | 1
VBN → offered | 1

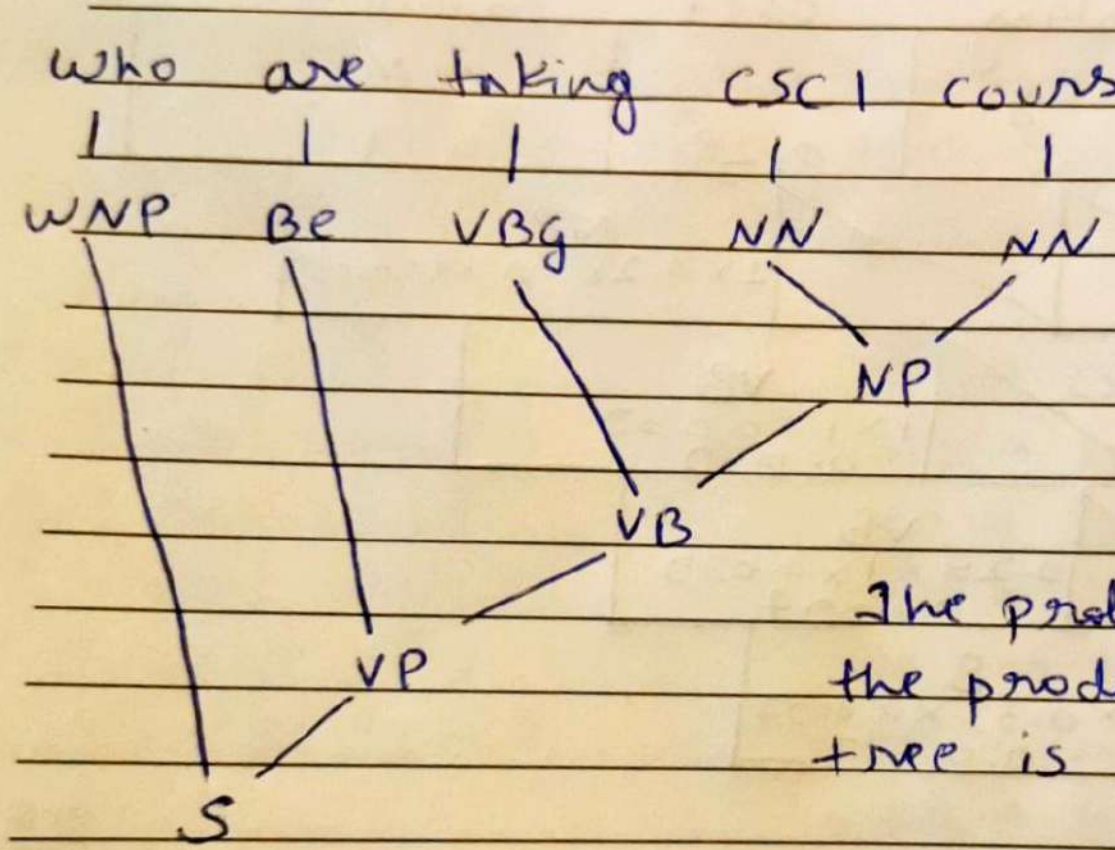
b) CYK algorithm to parse the sentence. "Who are taking CSC1 courses" is as follows:

19 Mon



∴ The probability is computed to be 0.0032

c) The final parse tree obtained ~~form~~ from parsing in the part b) along with the probability is as follows:



The probability of the produced parse tree is 0.0032.