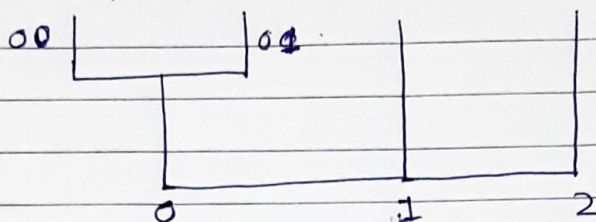


Solution to Q20 Midsem

Symbols : S_1 S_2 S_3 S_4
 (0.25) (0.25) (0.25) (0.25)



thus,

Symbol Mapping

S_1 : 00

S_2 : 01

S_3 : 1

S_4 : 2

Tree + variations
 Variations: Branching
 from node 1 or
 node 2.

$$\begin{aligned} \text{Average No. of labels per source} &= 0.25(2) + 0.25(2) + 0.25 + 0.25 \\ &= 1.5 \end{aligned}$$

Marking Scheme:

Correct Tree + Full Symbol Mapping \rightarrow 5 marks
 Correct Tree + incomplete symbol mapping \rightarrow 4 ~~2~~ marks
 Incorrect tree \rightarrow 0