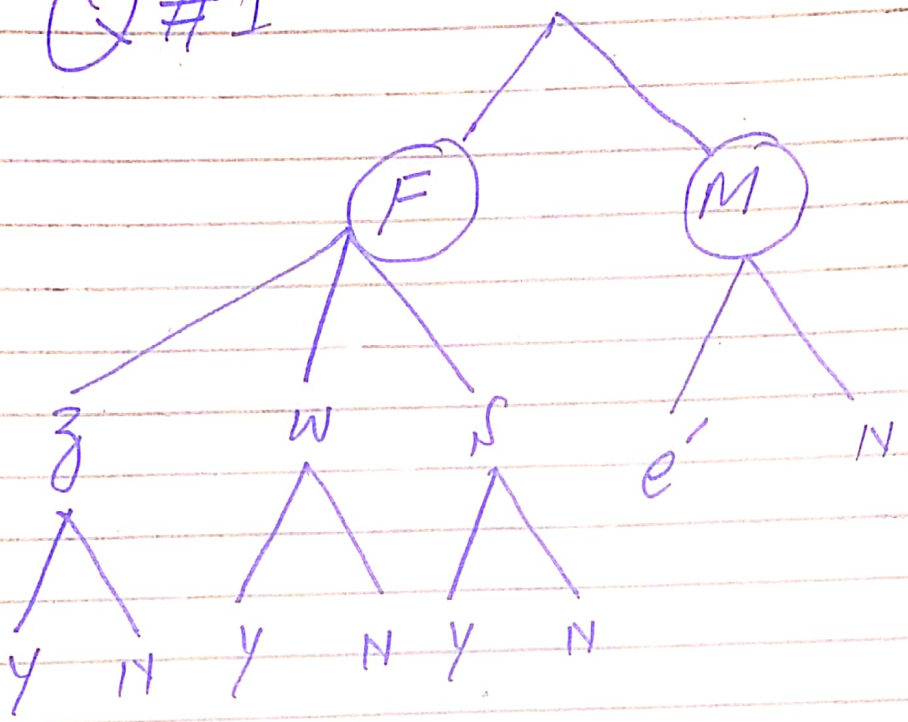
Probability & Statistics

19L-1135

Q#1



e : exercise

A : {ZY, ZN, WY, WN, SY, SN}

B : {WY, WN}

(i) A ∪ B : {ZY, ZN, WY, WN, SY, SN}

(ii) A ∩ B : {WY, WN}

Q #2

$P(A) = 0.2$
$P(B) = 0.35$

(i) $P(A') = 1 - 0.2 = 0.8$ ans

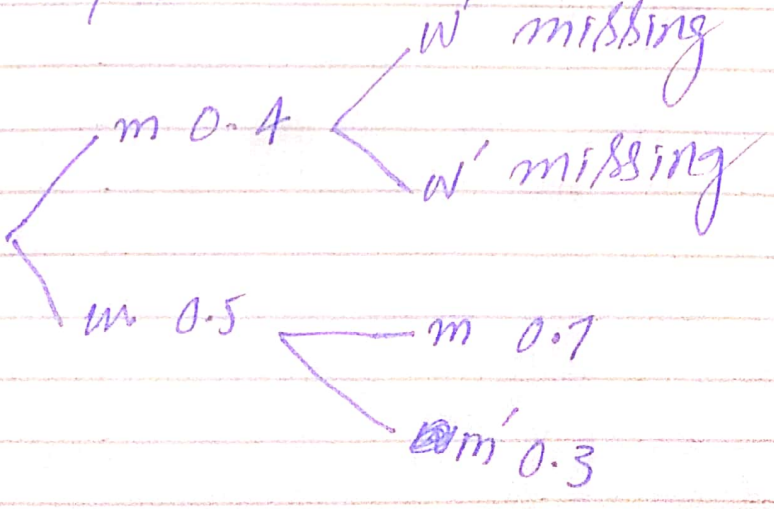
(ii) $P(A' \text{ and } B')$

$= 0.8 \times (1 - 0.35)$
$= 0.52$ ans

(iii) $P(A \cup B)$

$= 0.2 + 0.35 = 0.55$ Ans

Q #2/b



Q2 # b/(i)

~~$p(m|w) \neq p(w|m)$~~

$p(m|w) = 0.7$

$= \frac{p(m \cap w)}{p(w)} = 0.7$

$p(m \cap w) = 0.7 \times p(w)$

$p(w \cap w) = 0.7 \times 0.5$

$= 0.35$ Ans.

(ii) This condition was missing.

$p(w|m)$

$= \frac{p(w \cap m)}{p(m)} = \frac{0.35}{0.4} = 0.875$

(iii) ~~$p(w) + p(m) + p(w m')$~~

~~$+ p(w' m)$~~

~~$= 0.5 + 0.4 + 0.3 + 0.$~~

Q#2/b (iii)

$= P(mW') + P(Wm')$

$= 0.4 (0.4 \times 0.5) + 0.3$

$= 0.5$ Ans.

Q#2/c

$P(S) = 13/52 = 1/4$

$P(D) = \frac{1}{4}$, $P(C) = \frac{1}{4}$, $P(H) = \frac{1}{4}$

$P(SDHCC) = \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$

$= \left(\frac{1}{4}\right)^5 = 0.00098$ Ans.