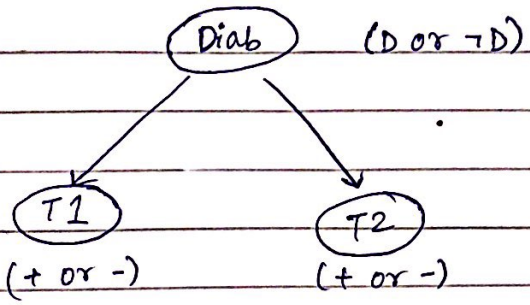
Q3)



(iii) $P(D \mid T1=+, T2=+)$

$$= \frac{P(T1=+, T2=+ \mid D) \times P(D)}{P(T1=+, T2=+)}$$

$$= \frac{P(T1=+ \mid D) \times P(T2=+ \mid D) \times P(D)}{P(T1=+, T2=+)}$$

$$= \frac{P(T1=+ \mid D) \times P(T2=+ \mid D) \times P(D)}{\sum_{\text{all values of Diab}} P(T1=+, T2=+ \mid Diab) \times P(Diab)}$$

$$= \frac{P(T1=+ \mid D)\, P(T2=+ \mid D)\, P(D)}{\sum_{Diab} P(T1=+ \mid Diab)\, P(T2=+ \mid Diab)\, P(Diab)}$$

$$= \frac{(0.9 \times 0.9 \times 0.01)}{(0.9 \times 0.9 \times 0.01) + (0.2 \times 0.2 \times 0.99)}$$

$$= \frac{0.0081}{0.0081 + 0.0396}$$

$$= 0.1698$$