Subject 20A_Q3

Date 25 April 19th

Attendants

$\boxed{Q2}$

$$\underbrace{(\log P(x) + Z)}$$

↑

unnormarized marginal probability in x

$$P(x) = \sum_y \sum_z p(x, y, z)$$

$$= \sum_y \sum_z \frac{1}{Z} \exp(-E(x, y, z))$$

$$\tilde{p}(x) = \exp(-E(x, y, z))$$

$$p(x) = \frac{1}{Z} \tilde{p}(x)$$

$$\log \tilde{p}(x) = \underbrace{\log p(x) + \log Z}$$

<Exact Computation>

$$O(2^{M+K}) + O(2^{M+N+K})$$

Subject 20A_Q3 Date 26

Attendants April 19th

but if we calc

$$\log P(x) + \log Z \quad \text{as} \quad \log \tilde{P}(x)$$

$$\tilde{P}(x) = \frac{1}{Z} P(x)$$

$$\tilde{P}(x) = \sum_{x} \sum_{y} \tilde{P}(x, y, z)$$

it still need to

take exp of x, y

so it costs $O(2^{n+k})$