

BAI TAP TUAN 1

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Bai 1:

a) Nguồn thông tin: Xúc iắc

b) $X = \{1, 2, 3, 4, 5, 6\}$

$$\begin{aligned} H &= - \sum_{i=1}^6 \frac{1}{6} \log_2\left(\frac{1}{6}\right) \\ &= -6 * \frac{1}{6} * \log_2\left(\frac{1}{6}\right) \\ &\approx 2.58 \end{aligned}$$

Bai 2:

a) Nguồn thông tin: 2 dòng iu

b) $X = \{“HH”, “HT”, “TH”, “TT”\}$

$$\begin{aligned} I(“TT”) &= -\log_2\left(\frac{1}{4}\right) \\ &= 2 \end{aligned}$$

c) $H = - \sum_{i=1}^4 \frac{1}{4} \log_2\left(\frac{1}{4}\right) = 2$

Bai 3:

$X = N^*$

$$\begin{aligned} H &= - \sum_{i=1}^{\infty} \frac{1}{2} \log_2\left(\frac{1}{2}\right)^i \\ &= \sum_{i=1}^{\infty} \frac{i}{2^i} \\ &= 2 \end{aligned}$$