112土 90022

Computer Network - HW01.1

1. The range of frequencies that the signal occupies.
   (Between highest and lowest)

2. $\log_2(2) = 1$ bit $\Rightarrow \log_2(8) = 3$ bits, $3 - 1 = 2$ bits

3. Nyquist Thm. $\Rightarrow$ highest freq. $\times 2 \Rightarrow 2 \times 2k = 4k$ (Hz/s)

4. (1) Sampling (2) Quantization (3) Encoding
   (eg. PCM encoder)

5. Shannon - Thm. $\Rightarrow C = B\log_2(1 + \frac{S}{N}) \Rightarrow 10^8 \times \log_2(4) = 200$ M(bps)

6. AM: The strength of the signal is conveyed through the magnitude of the amplitude. (frequency remains constant)

   FM: Stored in frequency variations. (amplitude remains constant)