

Question 1

1. Entropy = $L \log_2 N$

Combination: $26^1 \times 26^1 \times 10^2 \times 26 \times 26 \times 26 = 1 \times \frac{19^{10} 33313550400}{10 \log_{10} 2} = 34.96 \text{ bits}$

$\sqrt[10]{690,899} = 0.613e56C3989f092ff931469c2405$

$E = L \cdot \log_2 N$
 $= 32 \log_2 2^6$
 128 bits.

2.

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graph TD; TOP[TOP] --> S1_06[S1,06]; TOP --> S3[S3]; S1_06 --> S3_02[S3,02]; S1_06 --> S3_03[S3,03]; S3_02 --> 04[04]; 04 --> S4[S4]; S4 --> 01[01]; S3_03 --> S2[S2]; S2 --> 05[05];
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and write
(S1,06): S1 can read object 6 so must stay together
(S3,02) and (S3,03): S3 can read and write object 02 and 03 so must stay together.
(S2): Subject 2 can write in object 04, 05, 06
(S1) is the highest because it can read all files.
Subject 04 is dominated by object 4 because S4 can read 04.
Subject 6 reads object 01, 02, 03 and 05

2. to 06?

Question 3

S.O.V

Subjects	Objects	Trees	Apples	Fences	Flags	Waves
Alice		Climb	Eat			
Bob			Eat	Climb	wave	
Carol					wave	Jump
Trees			Hurt			

The set of acts refer to the read and writing of a major object of an access control, which restricts resources/allow particular actions via either different groups or Subjects. Including execution

The objects here trees, fences, apples, flags and waves.
The subjects here are Alice, Bob, Trees and Carol.

The ACS, OJ is

$$A(\text{Trees}, \text{Apple}) \supseteq \text{Hurt}.$$

$$A(\text{Alice}, \text{Trees}) \supseteq \text{Climb}$$

$$A(\text{Alice}, \text{Apples}) \supseteq \text{Eat}$$

$$A(\text{Bob}, \text{Apples}) \supseteq \text{Eat}$$

$$A(\text{Bob}, \text{Fences}) \subseteq \text{Climb}$$

$$A(\text{Bob}, \text{Flags}) \subseteq \text{wave}.$$

$$A(\text{Carol}, \text{Flags}) \subseteq \text{wave}$$

$$A(\text{Carol}, \text{Waves}) \subseteq \text{Jump}.$$