

Subjective Questions

Write detailed answers. Adequately explain your assumptions and thought process.

- 1.0 points There are 2 jars of capacities 5 L and 144 L respectively. First you are given a jar after using which is taken back and you are handed the next jar. Assume the presence of a sufficiently large bucket and unlimited water supply. How would you exactly measure 1 L of water?

4./0 points Solves system of linear congruences:

$$\begin{aligned} a_n &= a, -1 \pmod{5} \\ a_n &= 2a, -1 \pmod{7} \end{aligned}$$

(1)

where $a_0 = 0 \pmod{35}$ and $a_j = 1 \pmod{35}$

3. Given a forest of n nodes and k trees, how many edges? Prove your answer.

2. You are given a string containing 15 A's, 10 B's, 33 C's, 21 D's, 2 V's,
 Find the Huffman encoding over alphabet $\{0,1\}$.