It is the information about the task N26

1) Th-234 has a half-life of 24.1 days. Your answer is:

$$T_{1/2} = 24.106 \pm 0.007 \text{ s.}$$

2),3) and 5) I agree with your answers.

4) It is a good that you know the telegraph equation. The variable x is a coordinate along the coaxial cable. If you solve the system

$$\frac{\partial^2 V}{\partial t^2} = u^2 \frac{\partial^2 V}{\partial x^2},$$

$$\frac{\partial^2 I}{\partial t^2} = u^2 \frac{\partial^2 I}{\partial x^2},$$

how would you find the magnetic and electric fields $\vec{B}(r,t)$, $\vec{E}(r,t)$ (where $b \leq r \leq a$ is the distance from the center of the cable)?

4) A coaxial cable consists of a wire with radius a (the core of the cable), which is wrapped with insulating material with dielectric constant ε, until radius b (called the insulator).
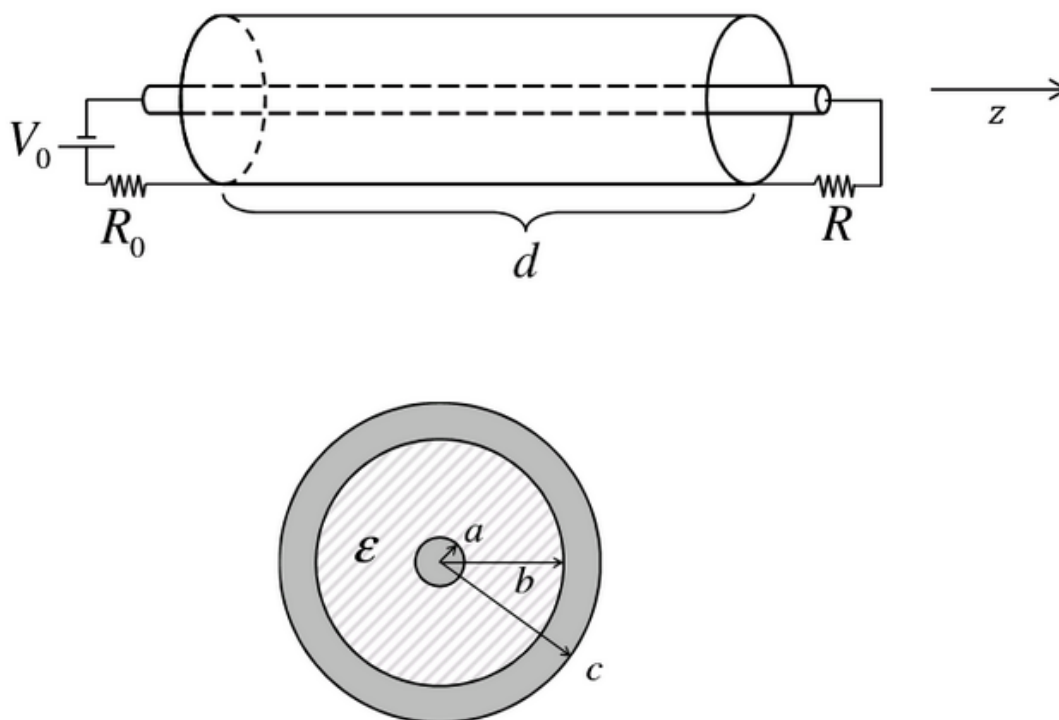
1. There may be a misprint, the correct unit is "days".

2. With known functions $V(x, t)$ and $I(x, t)$ the fields can be calculated directly from Maxwell equations, e.g. with the method demonstrated in the calculation of the cable's parameters.