02458 Cognitive Modeling test Exam 2

- This is a test exam. It will not count towards your final grade.
- Time of exam: The exam begins 9 am on the 30th of November 2023. The exam ends at 10:00 am.
- All aids allowed. Connection to the internet is *not* allowed.

Problem 1

In another experiment the observer was presented with beeps, flashes or both beeps and flashes. Observers had to respond whether they saw 1 or 2 flashes. We have recorded the responses as the number of trials in which the observer responded to have seen two flashes. The data are in the tables below. Each type of stimulus was presented 20 times. For audiovisual stimuli, the observer reported the number of perceived flashes, but this will not be important for your analysis.

1 beep	2 beeps
1	20

1 flash	2 flashes
6	12

	1 beep	2 beeps
1 flash	6	18
2 flashes	5	20

Fit the strong fusion probability matching model (also known as the Fuzzy Logical Model of Perception) and the early strong fusion model to the data. Write the exact expression for the likelihood function you have used to fit the model. List the parameter values and the negative log likelihood of the data given the model. Explain your approach.