(1) A tank contains 1000L of pure water. Brine that contains 0.05kg of salt per liter of water enters the tank at a rate of 5L/min. Brine that contains 0.04kg of salt per liter of water enters the tank at a rate of 10L/min. The solution is kept thoroughly mixed and drains from the tank at a rate of 15L/min. How much salt is in the tank after one hour?
(2) The differential equation below models the temperature of a 87°C cup of coffee in a 23°C room, where it is known that the coffee cools at a rate of 1°C per minute when its temperature is 73°C. Solve the differential equation to find an expression for the temperature of the coffee at time \( t \). (Let \( y \) be the temperature of the cup of coffee in °C, and let \( t \) be the time in minutes, with \( t = 0 \) corresponding to the time when the temperature was 87°C.)