Begin your response to **QUESTION 7** on this page.

7. A student conducts a chromatography experiment and needs to prepare 100.0 mL of 0.340 *M* NaCl(*aq*) to use as the solvent.

(a) Calculate the mass of solid NaCl (molar mass 58.44 g/ mol) needed to prepare the 100.0 mL of 0.340 *M* NaCl(*aq*).

(b) In the following table, briefly list the additional steps necessary to prepare the 100.0 mL of 0.340 *M* NaCl(*aq*) solution using only materials selected from the choices given. Assume that all appropriate safety measures are already in place. Not all materials in the list may be needed.

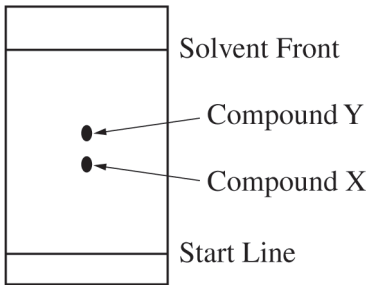
- Solid NaCl
- Distilled water
- Weighing paper and scoop
- Balance
- 100.0 mL volumetric flask
- 50.0 mL graduated cylinder
- Pipet
- 150 mL beakers
- Chromatography paper

Step	Step Description and Materials Used
1.	Use the weighing paper and scoop to measure the correct mass of solid NaCl on the balance.
2.	
3.	Swirl the mixture to dissolve the solid NaCl.
4.	
5.	Stopper and invert the mixture several times to ensure that the mixture is homogeneous.

GO ON TO THE NEXT PAGE.

Continue your response to **QUESTION 7** on this page.

The student uses the $NaCl(aq)$ solvent to separate a mixture of compounds X and Y in a chromatography experiment. After 30 minutes, the student removes the chromatography paper from the chamber. The results of the experiment are shown.



(c) A second student conducts the same chromatography experiment but removes the chromatography paper from the chamber after 15 minutes instead of 30 minutes. Predict the effect, if any, this would have on the separation distance between compounds X and Y in the new experiment. Explain your reasoning.

STOP

END OF EXAM

Question 7: Short Answer — 4 points

(a)	For the correct calculated value: $0.1000\ \text{L} \times \frac{0.340\ \text{mol}}{1\ \text{L}} \times \frac{58.44\ \text{g}}{1\ \text{mol}} = 1.99\ \text{g NaCl}$	**1 point**
(b)	For a correct description of step 2: *Combine the solid* NaCl *and some distilled water in a* 100.0 mL *volumetric flask.*	**1 point**
	For a correct description of step 4: *Fill the volumetric flask with distilled water to the calibration* (100.0 mL) *mark.*	**1 point**
	Total for part (b)	**2 points**
(c)	For the correct prediction and a valid explanation: *It would decrease. The solvent front will not travel as far in the second experiment, so the separation will be smaller.*	**1 point**
	Total for question 7	**4 points**