

## CHAPTER V


### CONCLUSION

Computer curve fitting program, SPSS/PC<sup>+</sup>, can be used in the analyzing for potentiometric titration data of two weak acid mixtures and gave good results for equivalent points determination of two weak acid mixtures. This program was tested by simulation of data.

In general, satisfying results of equivalent points determination were obtained from the modified equation (Eq. 53) with the aid of multiple linear regression analysis and SPSS/PC<sup>+</sup> program. Error in determination of equivalent points would result whenever alkaline error was encountered as the electrode membrane could respond to the other cation ( $\text{Na}^+$ ) besides the hydrogen ion and this phenomenon is general encountered when pH of solution exceed 10.

Equation 53 was also found to be incapable of accurately determining equivalent points for each weak acid

in the mixture when  $\Delta pK_a$  were less than 2 as the measurement of pH values by the glass electrode in this region was not sensitive enough to the change of titrant volume. It could be seen that the minimum titration curve slope from the titration of weak acid mixtures ( $\Delta pK_a < 2$ ) was less than the minimum slope from the titration of weak acid mixtures ( $\Delta pK_a > 2$ ), see Table 35. Our investigation did not include samples for  $\Delta pK_a$  between 1.3 and 1.9. More laboratory work needed to be done to identify the minimum value of  $\Delta pK_a$  for which Equation 53 can be applied to determine equivalent point of each individual weak acid in the mixture.



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