Homework Chapter 4

4.1 Consider the survival time of the 30 melanoma patients in Table 3.1.

a. Compute and plot the PL estimates of the survivorship functions $S(t)$ of the two treatment groups and check your results with Table 3.2 and Figure 3.1.
b. Compute the variance of $S(t)$ for every uncensored observation.
c. Estimate the median survival times of the two groups.

Use the data in Table 3.2 or the SAS file in your notes.

4.4 Consider the remission data of 42 patients with acute leukemia in Example 3.3.

a. Compute and plot the PL estimates of $S(t)$ at every time to relapse for the 6-MP and placebo groups.
b. Compute the variances of $S(10)$ in the 6-MP group and of $S(3)$ in the placebo group.
c. Estimate the median remission times of the two treatment groups.

Use PROC LIFREG with the PL option

The remission times of 42 patients with acute leukemia were reported by Freireich et al. (1963) in a clinical trial undertaken to assess the ability of 6-mercaptopurine (6-MP) to maintain remission. Each patient was randomized to receive 6-MP or a placebo. The study was terminated after one year. The following remission times, in weeks, were recorded:

6-MP (21 patients): 6, 6, 6, 7, 10, 13, 16, 22, 23, 6*, 9*, 10*, 11*, 17*, 19*, 20*, 25*, 32*, 32*, 34*, 35*

Placebo (21 patients): 1, 1, 2, 2, 3, 4, 4, 5, 5, 8, 8, 8, 8, 11, 11, 12, 12, 15, 17,

4.9 Do a complete life-table analysis of the data given in Exercise Table 4.2, the 𝒜𝓃𝑔𝒾𝓃𝒶 𝒫𝑒𝒸𝓉𝑜𝓇𝒾𝓈 data.

a. Plot the three survival functions: survival, hazard and density functions.

USE PROC LIFEREG with the LT option – data are in the Notes.