Homework Chapter 5

5.8 Using the data form Table 3.1 compare the age distribution of the two groups using Cox's F-est.

```
OPTIONS PS=60 LS=80 NOLABEL NONUMBER NOCENTER NODATE;
/* Thirty melanoma patients (stages 2 through 4) were studied to compare the
immunotherapies BCG (Bacillus Calmette-Guerin) and Corynebacterium parvum for
their abilities to prolong remission duration and increase survival time. The
age, gender, disease stage, treatment received, remission duration, and
survival time are given for each of 30 patients and can be found in Lee &
Wang (2003) in Table 3.1. page 20. All patients were resected before
treatment began and had no evidence of melanoma at the time of first
treatment. Treatment 1 is the BCG immunotherapy; Treatment 2 is the C. parvum
treatment. Females are coded as 0 and males are coded as 1.
*/
DATA TOTAL;
LABEL MONTHS='Months of Remission';
INPUT PATIENT AGE SEX TYPE2A TYPE3A TYPE3B TYPE4A TREATMENT REMTIME
RELAPSE LIFETIME DEATH;
CENSOR1=(RELAPSE<1);
CENSOR2=(DEATH<1);
CARDS;
 1 59 0 0 0 1 0 1 33.7 0 33.7 0
 2 50 0 0 0 1 0 1  3.8 1  3.9 1
 3 76 1 0 0 1 0 1  6.3 1 10.5 1
 4 66 0 0 0 1 0 1  2.3 1  5.4 1
 5 33 1 0 0 1 0 1  6.4 1 19.5 1
 6 23 0 0 0 1 0 1 23.8 0 23.8 0
 7 40 0 0 0 1 0 1  1.8 1  7.9 1
 8 34 1 0 0 1 0 1  5.5 1 16.9 0
 9 34 1 0 0 1 0 1 16.6 0 16.6 0
10 38 0 1 0 0 0 1 33.7 0 33.7 0
11 54 0 1 0 0 0 1 17.1 0 17.1 0
12 49 1 0 0 1 0 2  4.3 1  8.0 1
13 35 1 0 0 1 0 2 26.9 0 26.9 0
14 22 1 0 0 1 0 2 21.4 0 21.4 0
15 30 1 0 0 1 0 2 18.1 0 18.1 0
16 26 0 0 0 1 0 2  5.8 1 16.0 0
17 27 1 0 0 1 0 2  3.0 1  6.9 1
18 45 0 0 0 1 0 2 11.0 0 11.0 0
19 76 0 0 1 0 0 2 22.1 1 24.8 0
20 48 1 0 1 0 0 2 23.0 0 23.0 0
21 91 1 0 0 0 1 2  6.8 1  8.3 1
22 82 0 0 0 0 1 2 10.8 0 10.8 0
23 50 0 0 0 0 1 2  2.8 1 12.2 0
24 40 1 0 0 0 1 2  9.2 1 12.5 0
25 34 1 0 1 0 0 2 15.9 1 24.4 1
26 38 1 0 0 0 1 2  4.5 1  7.7 1
27 50 1 1 0 0 0 2  9.2 1 14.8 0
28 53 0 1 0 0 0 2  8.2 0  8.2 0
29 48 0 1 0 0 0 2  8.2 0  8.2 0
30 40 0 1 0 0 0 2  7.8 0  7.8 0
;
PROC LIFETEST DATA=TOTAL NELSON OUTS=TOTAL PLOTS=(S H P);
TIME LIFETIME*CENSOR1(1);
STRATA TREATMENT / TEST=ALL;
RUN;
```

5.14 Sixty-six patients are separated into three treatment groups. The initial remission times are given in weeks. Are the three treatment groups equally effective in prolonging remission? Discuss your findings!

SAS Code

```
data EXAMPLE5_14;
input treat @@;
if treat =1 then n=25;
if treat=2 then n=19;
if treat=3 then n=22;
do i=1 to n;
input time cens @@;
output;
end;
drop i;
datalines;
1
4 1 5 1 9 1 10 1 12 1 13 1 10 1 23 1 28 1 28 1 28 1 29 1 31 1
32 1 37 1 41 1 41 1 57 1 62 1 74 1 100 1 139 1 20 0 258 0 269 0
2
8 1 10 1 10 1 12 1 14 1 20 1 48 1 70 1 75 1 99 1 103 1 162 1
169 1 195 1 220 1 161 0 199 0 217 0 245 0
3
8 1 10 1 11 1 23 1 25 1 25 1 28 1 28 1 31 1 31 1 40 1 48 1 89 1
124 1 143 1 12 0 159 0 190 0 196 0 197 0 205 0 219 0
;
proc print;
run;
ods graphics on;
proc lifetest plots=(s h p);
time time*cens(0);
strata treat /test=wilcoxon adjust=tukey;
run;
ods graphics off;
```