SAS Output for Problem 3

The FREQ Procedure

Frequency	Table of group by tumor		
	tumor		
group	yes	no	Total
treated	21	2	23
control	19	13	32
Total	40	15	55

Statistics for Table of group by tumor

Statistic	DF	Value	Prob
Chi-Square	1	6.8781	0.0087
Likelihood Ratio Chi-Square	1	7.6349	0.0057
Continuity Adj. Chi-Square	1	5.3625	0.0206
Mantel-Haenszel Chi-Square	1	6.7531	0.0094
Phi Coefficient		0.3536	
Contingency Coefficient		0.3334	
Cramer's V		0.3536	

Fisher's Exact Test	
Cell (1,1) Frequency (F)	21
Left-sided Pr <= F	0.9990
Right-sided Pr >= F	0.0083
Table Probability (P)	0.0074
Two-sided Pr <= P	0.0130

Sample Size = 55

SAS Output for Problem 6

The LOGISTIC Procedure

Model Information	
Data Set	WORK.KNEEPAIN
Response Variable	y
Number of Response Levels	5
Model	cumulative logit
Optimization Technique	Fisher's scoring

Number of Observations Read	127
Number of Observations Used	127

Response Profile		
Ordered Value	y	Total Frequency
1	1	36
2	2	34
3	3	25
4	4	26
5	5	6

Probabilities modeled are cumulated over the lower Ordered Values.

Score Test for the Proportional Odds Assumption		
Chi-Square	DF	Pr > ChiSq
21.3978	9	0.0110

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	388.752	376.932
SC	400.128	396.842
-2 Log L	380.752	362.932

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	17.8195	3	0.0005
Score	16.2594	3	0.0010
Wald	16.6274	3	0.0008

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	1	-7.5097	2.0301	13.6840	0.0002
Intercept	2	1	-6.2478	1.9955	9.8034	0.0017
Intercept	3	1	-5.2412	1.9775	7.0249	0.0080
Intercept	4	1	-3.2271	1.9915	2.6258	0.1051
Tr		1	0.9379	0.3310	8.0292	0.0046
Age1		1	-0.3720	0.1296	8.2427	0.0041
Age2		1	0.00617	0.00205	9.0371	0.0026