SAS Ouput for Problem 2

The FREQ Procedure

Frequency Row Pct	Table of gender by depress		
	depress		
gender	yes	no	Total
female	197 41.83	274 58.17	471
male	66 24.18	207 75.82	273
Total	263	481	744

Statistics for Table of gender by depress

Statistic	DF	Value	Prob
Chi-Square	1	23.5586	<.0001
Likelihood Ratio Chi-Square	1	24.2883	<.0001

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	2.2550	1.6178	3.1432
Relative Risk (Column 1)	1.7301	1.3670	2.1896
Relative Risk (Column 2)	0.7672	0.6930	0.8494

Frequency Row Pct	Table 1 of gender by depress		
	Controlling for educ=low		
	depress		
gender	yes	no	Total
female	85 44.74	105 55.26	190
male	24 33.33	48 66.67	72
Total	109	153	262

Statistics for Table 1 of gender by depress
Controlling for educ=low

Statistic	DF	Value	Prob
Chi-Square	1	2.7948	0.0946
Likelihood Ratio Chi-Square	1	2.8399	0.0920

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	1.6190	0.9181	2.8553
Relative Risk (Column 1)	1.3421	0.9337	1.9292
Relative Risk (Column 2)	0.8289	0.6736	1.0201

Frequency Row Pct	Table 2 of gender by depress Controlling for educ=hig		
	depress		
gender	yes	no	Total
female	112 39.86	169 60.14	281
male	42 20.90	159 79.10	201
Total	154	328	482

Statistics for Table 2 of gender by depress
Controlling for educ=hig

Statistic	DF	Value	Prob
Chi-Square	1	19.3789	<.0001
Likelihood Ratio Chi-Square	1	19.9812	<.0001

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	2.5089	1.6559	3.8013
Relative Risk (Column 1)	1.9075	1.4061	2.5875
Relative Risk (Column 2)	0.7603	0.6751	0.8562

Summary Statistics for gender by depress
Controlling for educ

Cochran-Mantel-Haenszel Statistics (Based on Table Scores)				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	20.7447	<.0001
2	Row Mean Scores Differ	1	20.7447	<.0001
3	General Association	1	20.7447	<.0001

Common Odds Ratio and Relative Risks				
Statistic	Method	Value	95% Confidence Limits	
Odds Ratio	Mantel-Haenszel	2.1573	1.5442	3.0139
	Logit	2.1531	1.5399	3.0106
Relative Risk (Column 1)	Mantel-Haenszel	1.6726	1.3244	2.1122
	Logit	1.6492	1.3058	2.0829
Relative Risk (Column 2)	Mantel-Haenszel	0.7790	0.7025	0.8639
	Logit	0.7767	0.7006	0.8610

Breslow-Day Test for Homogeneity of the Odds Ratios	
Chi-Square	1.4942
DF	1
Pr > ChiSq	0.2216

Total Sample Size = 744

SAS Output for Problem 4

Output for Model A:

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	1751	1915.0062	1.0937
Scaled Deviance	1751	1915.0062	1.0937
Pearson Chi-Square	1751	1591.4172	0.9089
Scaled Pearson X2	1751	1591.4172	0.9089
Log Likelihood		-1439.0769	
Full Log Likelihood		-2682.5798	
AIC (smaller is better)		5385.1595	
AICC (smaller is better)		5385.2853	
BIC (smaller is better)		5439.8959	

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
age	1	29.47	<.0001
dur	1	48.18	<.0001
nation	1	0.04	0.8329
relig	5	9.74	0.0831
univ	1	17.79	<.0001

Analysis Of Maximum Likelihood Parameter Estimates							
Parameter		DF	Estimate	Standard Error	Wald 95% Confidence Limits	Wald Chi-Square	Pr > ChiSq
Intercept		1	0.9194	0.1652	0.5956 1.2432	30.97	<.0001
age		1	0.0068	0.0012	0.0043 0.0092	29.83	<.0001
dur		1	-0.0865	0.0129	-0.1118 -0.0611	44.78	<.0001
nation		1	0.0293	0.1384	-0.2419 0.3006	0.04	0.8322
relig	1	1	0.1254	0.0750	-0.0216 0.2724	2.80	0.0944
relig	2	1	0.0270	0.0685	-0.1073 0.1613	0.16	0.6934
relig	3	1	-0.0698	0.0763	-0.2193 0.0796	0.84	0.3599
relig	4	1	-0.0159	0.0788	-0.1703 0.1385	0.04	0.8398
relig	5	1	0.0615	0.0752	-0.0859 0.2090	0.67	0.4135
relig	6	0	0.0000	0.0000	0.0000 0.0000	.	.
univ		1	0.5858	0.1369	0.3174 0.8542	18.30	<.0001

Output for Model B:

Criteria For Assessing Goodness Of Fit			
Criterion	DF	Value	Value/DF
Deviance	1747	1718.6336	0.9838
Scaled Deviance	1747	1718.6336	0.9838
Pearson Chi-Square	1747	1484.5167	0.8498
Scaled Pearson X2	1747	1484.5167	0.8498
Log Likelihood		-1340.8906	
Full Log Likelihood		-2584.3934	
AIC (smaller is better)		5196.7869	
AICC (smaller is better)		5197.0274	
BIC (smaller is better)		5273.4178	

LR Statistics For Type 3 Analysis			
Source	DF	Chi-Square	Pr > ChiSq
age	1	12.18	0.0005
age2	1	12.10	0.0005
age3	1	82.29	<.0001
age4	1	28.83	<.0001
dur	1	14.51	0.0001
dur2	1	8.37	0.0038
nation	1	0.17	0.6842
relig	5	6.71	0.2430
univ	1	13.49	0.0002

SAS Output for Problem 5

Happiness and Income

The FREQ Procedure

Frequency Row Pct	Table of Income by Happy			
	Happy			
Income	very	pretty	notso	Total
above	272 44.23	294 47.80	49 7.97	615
average	454 31.97	835 58.80	131 9.23	1420
below	185 20.11	527 57.28	208 22.61	920
Total	911	1656	388	2955

Statistics for Table of Income by Happy

Statistic	DF	Value	Prob
Chi-Square	4	172.2637	<.0001
Likelihood Ratio Chi-Square	4	165.8864	<.0001
Mantel-Haenszel Chi-Square	1	146.5501	<.0001
Phi Coefficient		0.2414	
Contingency Coefficient		0.2347	
Cramer's V		0.1707	

Sample Size = 2955

Summary Statistics for Income by Happy

Cochran-Mantel-Haenszel Statistics (Based on Table Scores)				
Statistic	Alternative Hypothesis	DF	Value	Prob
1	Nonzero Correlation	1	146.5501	<.0001

Total Sample Size = 2955