MATH 611

Homework 11

1. Exercise 7.25 a, pg. 235, Robert and Casella.
2. Consider the hierarchical Bayes model:
3. Show analytically that is
4. Show analytically that is )
5. Write and implement the Gibbs sampler algorithm to obtain the Bayes estimate of p. Show the two dimensional scatter plot of and the density plot of the marginal distribution of p. It is up to you to determine the initial values, number of iterations etc.
6. Suppose we want to estimate the median of the distribution.
7. Determine analytically the pdf of the median.
8. Write an R-function that uses bootstrap to obtain 10000 observations of the sample median (with a positive –value of your choice) and construct the 90% BCa confidence interval. Did it capture the true value of the median?