BAYESIAN STATISTICS

HOME WORK # 1

Deadline: 15:00, Saturday, March 7, 2020

Problem 1. 1% of population has disease (D) rest is healthy (H).

90% of diseased persons tests positive (+)

90% of healthy persons tests negative (-).

Randomly selected person tests positive. What is the probability that the person has disease?

Problem 2. Delegates from 10 countries, including Russia, France, England, and the United States, are to be seated in a row. What is the probability that the French and English delegates are to be seated next to each other, and the Russian and U.S. delegates are not to be next to each other?

Problem 3. If 4 married couples are arranged in a row, find the probability that no husband sits next to his wife.

Problem 4. An ectopic pregnancy is twice as likely to develop when the pregnant woman is a smoker as it is when she is a nonsmoker. If 32 percent of women of childbearing age are smokers, what percentage of women having ectopic pregnancies are smokers?

Problem 5. Ninety-eight percent of all babies survive delivery. However, 15 percent of all births involve Cesarian sections, and when a Cesarian section is performed the baby survives 96 percent of the time. If a randomly chosen pregnant woman does not have a Cesarian section, what is the probability that her baby survives?