MATH-2205-A-CT-1

1. During a visit to a doctor's chamber, the probability of having neither medical test not a referral to a specialist is $\mathbf{19}\%$. Of those coming to that chamber, the probability of having a medical test is $\mathbf{37}\%$ and the probability of having referral is $\mathbf{54}\%$. What is the probability of having both medical test and referral? **[3]**

2. Bowl $\boldsymbol{A}$ contains $\mathbf{7}$ red and $\mathbf{5}$ white chips, and bowl $\boldsymbol{B}$ contains $\mathbf{9}$ white and $\mathbf{6}$ red chips. A chip is drawn at random from bowl $\boldsymbol{B}$ and transferred to bowl $\boldsymbol{A}$. **Find** the probability of then drawing a **different color** chip from bowl $\boldsymbol{A}$. **[2]**

3. For $\boldsymbol{P(A) = 0.44}$ and $\boldsymbol{P(B) = 0.52}$ find $\boldsymbol{P(A' \cup B')}$ such that $\boldsymbol{A}$ & $\boldsymbol{B}$ are (i) independent events (ii) mutually exclusive events. **[2]**

4. A test indicates that the presence of a particular disease $\mathbf{90\%}$ of the time when the disease is present and the presence of the disease $\mathbf{5\%}$ of the time when the disease is not present. If $\mathbf{2.5\%}$ of the population has the disease, calculate the conditional probability that a person selected at random has the disease if the test indicates that the presence of the disease. **[3]**