

**Quiz 4****Student's Full Name and Number:**

**Question 1:** Fiona owns a used car dealer with three Mercedes ( $M_1, M_2, M_3$ ) and two Toyotas ( $T_1, T_2$ ). Two customers arrive; each one is interested in buying one car. The customers do not know each other and they do not communicate. Let  $A$  be the event that the customers select at least one Toyota. Let  $B$  be the event that the customers select two cars of the same model.

- a) Describe the sample space.
- b) Describe event  $A$ . What is the probability of  $A$ ?
- c) Describe event  $B$ . What is the probability of  $B$ ?
- d) Describe event  $\bar{A}$ . What is the probability of  $\bar{A}$ ?

**Question 2:** It is estimated that 30% of all automobile accidents were caused by weather conditions and that 20% of all automobile accidents involved bodily injury. Of those accidents that involved bodily injury, 40% were caused by weather conditions

- a) What is the probability that a randomly chosen accident both was caused by weather conditions and involved bodily injury?
- b) Are the events "caused by weather conditions" and "involved bodily injury" independent?
- c) If a randomly chosen accident was caused by weather conditions, what is the probability that it involved bodily injury?
- d) What is the probability that a randomly chosen accident both was not caused by weather conditions and did not involve bodily injury?