Name: Key

STAT 345 - Summer, 2006: Quiz 2

BASED ON SECTION: 2.1

All parts are worth 1 point.

1. Describe (i.e. give the set of values for) the sample spaces of the following random experiments:

   (a) An experiment consists of recording the lifetime, in hours, of a transistor.

   $S = \{x : 0 \leq x < \infty\}$

   (b) An experiment consists of counting the number of transistors which have a lifetime of more than 24 hours.

   $S = \{0, 1, 2, 3, \ldots\}$

2. Are the sample spaces in problem (1) discrete or continuous?

   (a) Continuous

   (b) Discrete

3. Consider the sample space given by $S = \{x_1, x_2, x_3, x_4, x_5\}$. Let $A = \{x_1, x_2, x_3\}, B = \{x_3, x_4\}$, and $C = \{x_5\}$ be events in S. Find the following:

   (a) $A \bigcup B = \{x_1, x_2, x_3, x_4\}$

   (b) $A \bigcap B = \{x_3\}$

   (c) $A \bigcap C = \emptyset$

   (d) $(A \bigcap B)' = \{x_1, x_2, x_4, x_5\}$

   (e) $A \bigcap B' = \{x_1, x_2\}$

   (f) $A \bigcup B \bigcup C = \{x_1, x_2, x_3, x_4, x_5\} = S$