King Fahd University of Petroleum and Minerals
Department of Electrical Engineering

EE570 Stochastic Processes

Quiz #1	Time allowed: 15 minutes	Date: September 24, 2007

Student Name: Student Number:

Question 1

A random phenomena is defined by the property that its observation under a given set of circumstances leads to

(a) same observed outcome
(b) always different outcomes
(c) different outcomes with some regularity
(d) none of these choices

Question 2

A urn contains six balls. numbered $\{1, 2, 3, 4, 5, 6\}$. We draw one ball followed by the second ball in order when the ball drawn first is not replaced. What is the probability that the two balls drawn have the same number?

(a) $(a)\dfrac{1}{30}$ $\qquad (b)\dfrac{1}{6}$ $\qquad (c)1$ $\qquad (d)0$

Question 3

Two events A and B of an experiment have probabilities of occurrence as 3/8 and 6/8. Are events A and B are disjoint events?

(a) No   (b) yes   (c) do not know   (d) these are impossible events

Question 4

Probability of union of two events A and B is given by the sum of individual probabilities.

(a)False   (b) True   (c) Conditionally True   (d) None of the cases

Question 5

If $A = \{2 \leq x \leq 5\}$ and $B = \{3 \leq x \leq 6\}$, find $A \cup B, AB,$ and $(A \cup B)(\overline{AB})$.

Question 6

A man tosses 2 fair coins. What is the conditional probability that he has tossed two heads given that he has tossed at least one head?

Question 7

Evaluate the validity of the following statement.
The CDF and pdf of the random variable **x** are sufficient to compute all probabilities involving **x** alone.

(a) I agree with the statement   (b) I do not agree with the statement
(c) The statement should be modified (d) none of the three choices are applicable.

Question 8

A Probability Distribution Function is defined as

$$F(x) = 0; \quad x < 0$$
$$= 1 - \frac{1}{2}e^{-(x/3)} - \frac{1}{2}e^{-\lfloor x/3 \rfloor}; \quad x \geq 0 \tag{1}$$

$\lfloor . \rfloor$ denote integer value. What kind of distribution is this?

(a) discrete   (b) continuous   (c) mixed   (d) none of the given choices?