Student: _____

Group: _____

Lecturer: A.S. Eremenko

HOMEWORK 3

1. What is a random experiment produce:

1	

a) number of spots;

b) random events;

c) random outcomes;

d) random experiments?

2. What is a single instantiation of a random experiment:

1	

a) trial;

b) event;

c) random event;

d) random outcome?

3. How many elements contained in a set defining an elementary event:

1	

a) zero;

b) one;

c) two;

d) total number of all possible outcomes?

4. If events cannot occur at the same time, they are said to be:

1	

a) collectively exhaustive;

b) mutually exclusive;

c) compound;

d) impossible.

5. Which of groups listed below is an entire group of events?

5	

a) Random experiment is tossing a coin; events are:

$A_1 = \{head\},\ A_2 = \{tail\}$.

b) Random experiment is tossing of two coins; events are:

$B_1 = \{head, head\}$, $B_2 = \{tail, tail\}$.

c) Random experiment is throwing of two dices; events are:

$C_1 = \{6\ on\ faces\ of\ both\ dices\}$, $C_2 = \{no\ 6\ on\ faces\ of\ both\ dices\}$.

d) random experiment is a transmission of two signals on communication link; events are:

$D_1 = \{2\ signals\ are\ corrupted\}$; $D_2 = \{2\ signals\ aren`t\ corrupted\}$.

e) random experiment is a transmission of three messages on communication link; events are:

$E_1 = \{all\ messages\ are\ transmitted\ without\ errors\}$;

$E_2 = \{all\ messages\ are\ transmitted\ with\ errors\}$.

6. In which group of events listed below events are incompatible?

5	

a) Random experiment is tossing of two coins; events are:

$A_1 = \{head\ for\ the\ first\ coin\},\ A_2 = \{head\ for\ the\ second\ coin\}$.

b) Random experiment is two shots at a target; events are:

$B_1 = \{two\ misses\}$, $B_2 = \{two\ hits\}$.

c) Random experiment is two shots at a target; events are:

$C_1 = \{one\ hit\}$, $C_2 = \{one\ miss\}$.

d) Random experiment is drawing a two cards from the deck; events are:

$D_1 = \{two\ black\ cards\}$, $D_2 = \{one\ of\ the\ cards\ is\ the\ 7\ of\ Spades\}$,

$D_3 = \{one\ of\ the\ cards\ is\ the\ Queen\ of\ Clubs\}$.

e) Random experiment is a transmission of three messages by radio channel; events are:

$E_1 = \{first\ message\ contains\ an\ error\}$;

$E_2 = \{second\ message\ contains\ an\ error\}$.

7. In which group of events listed below events are equally possible (equally likely)?

a) Random experiment is tossing a bent (defective) coin; events are:

$A_1 = \{head\},\ A_2 = \{tail\}$.

6	

b) Random experiment is tossing of two coins; events are:

$B_1 = \{head, head\}$, $B_2 = \{tail, tail\}$.

c) Random experiment is drawing a card from the deck; events are:

$C_1 = \{A\ Heart\}$, $C_2 = \{A\ Diamond\}$, $C_1 = \{A\ Club\}$, $C_2 = \{A\ Spade\}$.

d) Random experiment is throwing a die; events are:

$D_1 = \{more\ than\ 3\ spots\}$, $D_2 = \{less\ than\ three\ spots\}$.

20	