NAME:_____ DATE: 01/20/2017

ASSIGNMENT: Binomial Probability Distributions

15.) A test has five questions. To pass the test, at least three of the questions must be answered correctly.

The probability that Mark answers a question correctly is $\frac{1}{5}$. Let X be the number of questions that Mark answers correctly.

(a) (i) Find E(X).

(ii) Find the probability that Mark passes the test.

(6)

Bill also takes the test. Let Y be the number of questions that Bill answers correctly.
The following table is the probability distribution for Y.

y	0	1	2	3	4	5
P($Y = y$)	0.67	0.05	$a + 2b$	$a - b$	$2a + b$	0.04

(b) (i) Show that $4a + 2b = 0.24$.

(ii) Given that E(Y) = 1, find a and b.

(8)

(c) Find which student is more likely to pass the test.

(3)

(Total 17 marks)

NAME:_____ DATE: 01/20/2017

38.) In a game a player rolls a biased four-faced die. The probability of each possible score is shown below.

Score	1	2	3	4
Probability	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{1}{10}$	x

(a) Find the value of x.

(2)

(b) Find E(X).

(3)

52.) A discrete random variable X has a probability distribution as shown in the table below.

x	0	1	2	3
P($X = x$)	0.1	a	0.3	b

(a) Find the value of $a + b$.

(2)

(b) Given that E(X) =1.5, find the value of a and of b.

(4)

(Total 6 marks)