Stat 230 Spring 2008

STAT 230 - Spring 2008 - Test 2

First (given) Name:		Las	t (family) Name:	
ID #:			UserID:	
	Please circle the c	orrect sect	cion number below:	
	Name	Section	Lecture Time	
	Diana Chisholm	1	10:30-11:20MWF	
	Diana Chisholm	2	09:30-10:20MWF	
	Ryan Browne	3	01:30-02:20MWF	

Mark	/ 30
MULL	/ 30

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1. [12 marks] Each person has either O, A, B, or AB type blood. O can receive donations from O only, A can receive from O or A, B can receive from O or B, and AB can receive from any type of blood. In Canada, the breakdown of population by blood type is as follows: O - 0.46 A - 0.42 B - 0.09 AB - 0.03

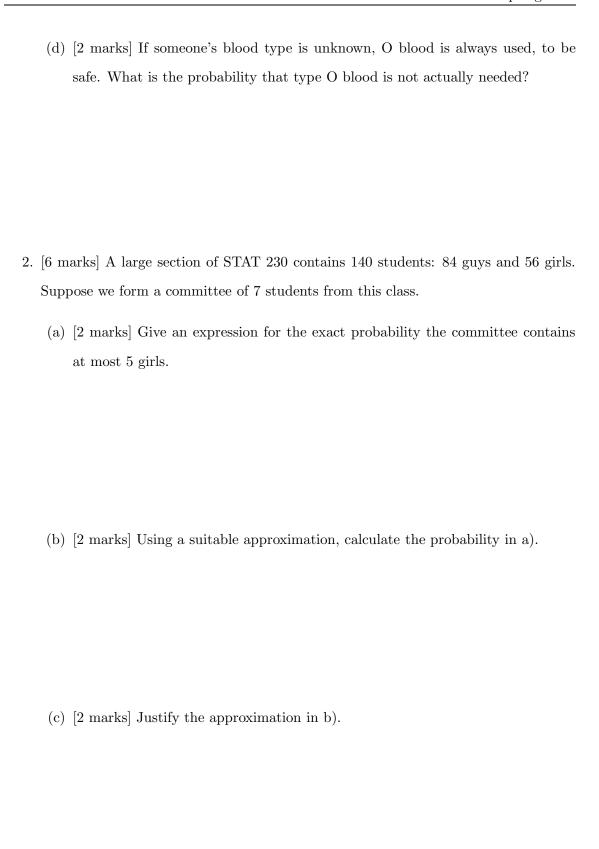
The probability a person with a given blood type will actually donate blood is as follows: O-0.10 A-0.07 B-0.04 AB-0.03

(a) [3 marks] What is the probability of a blood donation occuring?

(b) [4 marks] Given a donation has occurred, what is the probability a type B person can receive it?

(c) [3 marks] Given a random donation that a type B person can receive, what is the probability it was actually a type O donation?

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3. [12 marks] The probability function (pf) of a random variable X is given by:

$$f(x) = kx$$
 for $x = 1, 2, ..., 9$

(a) [3 marks] Find k.

(b) [5 marks] Find F(x), the cumulative distribution function (cdf) of X, for all values of x.

(c) [4 marks] Sketch the probability function (histogram) and the cumulative distribution (graph) of X for $0 \le x \le 5$.