

22 Warren and 4 Leconte  
1:10–2 PM

Your Name: \_\_\_\_\_ TA: \_\_\_\_\_

Please check that you have all 5 pages of this exam booklet. Write your name on *each* page. As you turn through the pages, look for the easy questions—do them first. Remember that this exam is only 50 minutes long.

- You need not simplify your answers unless you are specifically asked to do so.
- You need not convert binomial coefficients into quotients of factorials.
- It is essential to write legibly and *show your work*.
- If your work is absent or illegible, and your answer is not perfectly correct, then no partial credit can be awarded.
- Completely correct answers which are given without justification may receive little or no credit.

During this exam, you are not allowed to use calculators or consult your notes or books.

Problem	Maximum	Your Score
1	9	
2	16	
3	11	
4	9	
<b>Total</b>	<b>45</b>	

At the conclusion of the exam, hand in this exam paper to your TA.

Your Name: \_\_\_\_\_

**1** (*9 points*). A hand of three cards is drawn from an ordinary deck. If it is known that two of the cards are the ace of spades and the ace of clubs, what is the probability that all three cards are aces?

Your Name: \_\_\_\_\_

**2a** (*7 points*). Stan wears either a bathing suit alone, or else a bathing suit, a T-shirt, and a hat. He has 6 bathing suits, 9 T-shirts and 7 hats. In how many different ways can he get dressed?

**2b** (*9 points*). In how many ways can I divide a class of 15 students into five groups of three students?

Your Name: \_\_\_\_\_

**3** (*11 points*). Find the number of solutions to  $x + y + z = 10$  in non-negative integers which satisfy  $x \leq 5$  and  $y \leq 3$ .

Your Name: \_\_\_\_\_

**4** (*9 points*). A hand of three cards is drawn from an ordinary deck. If it is known that at least two of the cards are aces, what is the probability that all three cards are aces?