CS 238 **Discrete Mathematics II**

Exercises 6.1 An Introduction to Discrete Probability

Pages 399-400 *Grading Criteria*

22. What is the probability that a positive integer not exceeding 100 selected at random is divisible by 3?

Give yourself 1 point for getting the correct answer, and 1 point for an explanation of your solution, for a total possible of 2 points.

24. Find the probability of winning the lottery by selecting the correct six integers, where the order in which these integers are selected does not matter, from the positive integers not exceeding

a) 30.

b) 36.

c) 42.

d) 48.

*For each part (***a-d***), give yourself 1 point for getting the correct answer, and 1 point for an explanation of your solution, for a total possible of 8 points.*

26. Find the probability of selecting none of the correct six integers, where the order in which these integers are selected does not matter, from the positive integers not exceeding

a) 40.

b) 48.

c) 56.

d) 64.

*For each part (***a-d***), give yourself 1 point for getting the correct answer, and 1 point for an explanation of your solution, for a total possible of 8 points.*

40. Suppose that instead of three doors, there are four doors in the Monty Hall puzzle. What is the probability that you win by not changing once the host, who knows what is behind each door, opens a losing door and gives you the chance to change doors? What is the probability that you win by changing the door you select to one of the two remaining doors among the three that you did not select?

Give yourself 2 points for the correct answer, another 2 points for a well-thought-out argument for your answer, and another 2 points for a well-articulated argument for your answer, for a total possible of 6 points.