

Math 10B with Professor Stankova

Quiz 7; Tuesday, 3/6/2018

Section #211; Time: 11 AM

GSI name: Roy Zhao

Name: _____

Circle True or False or leave blank. (1 point for correct answer, -1 for incorrect answer, 0 if left blank)

1. True False The hyper geometric distribution assumes that trials are dependent (without replacement) while the binomial distribution assumes that trials are independent.
2. True False If f is the PMF of a random variable X , it is possible for $f(E[X]) = 0$.

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) (a) (3 points) At the Olympics, suppose that the number of medals per athlete is Poisson distributed with an average of 0.5 medals per athlete. What is the probability that in a team of 8 athletes, they have 10 medals amongst them?

- (b) (4 points) Now suppose I go to a party with 20 random athletes at the Olympic Village and on average, I expect to see 5 gold medalists there. If there are 100 gold medalists total at the Olympics, how many athletes are at the Olympics?

- (c) (3 points) With the same numbers as part (b), suppose that I throw a party and invite 10 random athletes. What is the probability that amongst them, 9 of them are gold medalists?