**STU22004 – Sample Questions 2**

1. Rolling 6 different dice, what is the probability that we have 3 pairs?
2. 15 students, 3 of them with high IQ, are to split between 3 classes. What is the probability that those 3 students go to different classes?
3. In Q2, what is the probability that all 3 go to the same class?
4. There are 2 locks on a door. You had the keys among the 6 keys that you usually have with you. If you have recently lost 1 of those 6 keys, what is the probability that you can still open the door?
5. In Q4, what is the probability that your first 2 random choices from 5 remaining keys open the door?
6. Box A contains 2 white and 3 black chips. Box B contains 3 white and 2 black chips. Box C contains 4 white and 1 black chips. We take 2 chips from a random box and both are white. What is the probability that they are taken from Box A?
7. What is the probability that among people at least 2 have the dame birthday?
8. 4 cards, numbered 1 to 4 are placed on the desk face down. You guess the numbers on the cards (like 3, 1, 4, 2, and not 2,2,2,2!!) What is the probability that at least 1 guess is correct?
9. You attend a party while you know nobody there!! There are 6 females and 4 males there, and you know there are 4 couples. What is the probability that you guess the couples correctly?
10. In Q9, what is the answer if there are 3 couples?
11. Probability of twin boys is and probability of twin girls is . if the twins have different genders, probability that the girl is born first is 0.5. If the first-born child is a girl, what is the probability that the second one is a girl as well?
12. If you put the letters abcdefghizzzzzzz randomly in a row, what is the probability that no two z are adjacent?
13. M messages are sent from N channels (N>M). what is the probability that no channel sends more than one message?
14. N chips, numbered 1 to N, are in a box. You take n of them. What is the probability that the smallest number left in the box is k?
15. n girls and m boys sit around a table. What is the probability that no two boys are adjacent? (
16. We assume p(B)=p and P(G)=q. In a family with 6 children, if we know at least one of them is boy, what is the probability that all are boy?
17. You roll two dice. If the sum is a prime number, what is the probability that it is 5?

(1,1)

(1,2), (2,1)

**(1,4), (4,1), (2,3), (3,2)**

(1,6), (6,1), (2,5), (5,2), (3,4), (4,3)

(5,6), (6,5)

1. A and B can hit a target with probabilities p1 and p2, respectively. A starts and they continue in turn. What is the probability that B wins?
2. The chance of winning in each match between A and B is 3:1 for the winner of their last match against each other. If A has won the last match, what is the probability that she wins at least 2 out of the next 3 games?

Add them all

1. Probability that the door of a room is locked equals 0.5 . We have 12 keys that one of them unlocks the door. If we choose 2 keys randomly what is the probability that we can get in?