Name: ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Entry number: ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

There are 2 questions for a total of 10 points.

1. Answer the following questions.

    (a) (1 point) State true or false (no reasons required): The probability of having an empty bin when throwing k distinguishable balls randomly into n distinguishable bins is the same as the probability of having an empty bin when throwing k indistinguishable balls randomly into n distinguishable bins.

    (a) ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

    (b) (4 points) Suppose you flip a biased coin that turns heads with probability p. What is the probability that you get even number of heads in n coin tosses. You have to give a concise expression. Show your working in the space below.

    (b) ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

2. (5 points) A fair coin is tossed repeatedly until two consecutive heads are tossed. Find the probability that the coin was tossed 11 times. Show calculations in the space below.

2. ⎯⎯⎯⎯⎯⎯⎯⎯

Name: _____

Entry number: _____

There are 2 questions for a total of 10 points.

1. Answer the following questions.

   (a) (1 point) State true or false (no reasons required): The probability of having an empty bin when throwing k distinguishable balls randomly into n distinguishable bins is the same as the probability of having an empty bin when throwing k indistinguishable balls randomly into n distinguishable bins.

   (a) _____

   (b) (4 points) Suppose you flip a biased coin that turns heads with probability p. What is the probability that you get even number of heads in n coin tosses. You have to give a concise expression. Show your working in the space below.

   (b) _____

2. (5 points) A fair coin is tossed repeatedly until two consecutive heads are tossed. Find the probability that the coin was tossed 12 times. Show calculations in the space below.

2. _____

Name: _____

Entry number: _____

There are 2 questions for a total of 10 points.

1. Answer the following questions.

   (a) (1 point) State true or false (no reasons required): The probability of having an empty bin when throwing k distinguishable balls randomly into n distinguishable bins is the same as the probability of having an empty bin when throwing k indistinguishable balls randomly into n distinguishable bins.

   (a) _____

   (b) (4 points) Suppose you flip a biased coin that turns heads with probability p. What is the probability that you get even number of heads in n coin tosses. You have to give a concise expression. Show your working in the space below.

   (b) _____

2. (5 points) A fair coin is tossed repeatedly until two consecutive heads are tossed. Find the probability that the coin was tossed 13 times. Show calculations in the space below.

2. _____