



## Al5030: Probability and Stochastic Processes

QUIZ 2

**DATE: 28 AUGUST 2024** 

Question	1(a)	1(b)	2	Total
Marks Scored				

## **Instructions:**

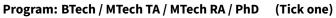
- Fill in your name and roll number on each of the pages.
- You may use any result covered in class directly without proving it.
- Unless explicitly stated in the question, DO NOT use any result from the homework without proof.
- 1. A box contains one coupon labelled 1, two coupons labelled 2, and so on up to ten coupons labelled 10. Two coupons are drawn simultaneously and uniformly at random from the box.
  - (a) (2 Marks)

Specify  $\Omega$  and  $\mathbb P$  for the experiment, assuming that  $\mathscr F=2^\Omega.$ 

(b) (2 Marks)

Find the probability of the event that the two coupons carry the same number.

Name: Roll Number: Department:





## 2. (1 Mark)

Consider the collection

$$\mathscr{D} = \bigg\{ (-\infty, x]: \ x \in \mathbb{R} \bigg\}.$$

Express the open interval (2,3) via countable unions, complements, and/or countable intersections of sets in  $\mathscr{D}$ .