



## COMSATS University Islamabad, Lahore Campus

### Assignment 1– Semester Spring 2025

Course Title:	Probability Methods in Engineering	Course Code:	EEE251
Course Instructor/s:	Dr. Muhammad Farooq-i-Azam	Programme Name:	BS Electrical Engineering
Semester:	4 <sup>th</sup>	Batch:	
	Section:		
		Total Score:	20
<b>Date:</b>	<b>25 February 2025</b>	<b>Due date:</b>	<b>03 March 2025</b>

#### Problem 1

(10)

Four of the light bulbs in a box of ten bulbs are burnt out or otherwise defective. If two bulbs are selected at random without replacement and tested,

- (i) What is the probability that exactly one defective bulb is found?
- (ii) What is the probability that exactly two defective bulbs are found?

**Problem 2****(10)**

A company produces machine components which pass through an automatic testing machine. 5% of the components entering the testing machine are defective. However, the machine is not entirely reliable. If a component is defective there is 4% probability that it will not be rejected. If a component is not defective there is 7% probability that it will be rejected.

- a) What fraction of all the components is rejected?
- b) What fraction of the components rejected is actually not defective?
- c) What fraction of those not rejected is defective?