# Week 2: Assignment 2

**The due date for submitting this assignment has passed.**

**Due on 2021-09-08, 23:59 IST.**

**As per our records you have not submitted this assignment.**

1) Which of the following is a valid sigma algebra? ***1 point***

1. $\{\Phi, \Omega\}$
2. $\{\Phi, A, A^C, \Omega\}$
3. $\{\Phi, A, A^C, B, B^C, A \cup B, A \cap B, \Omega\}$

- Both 1 and 2.
- Both 1 and 3.
- Both 2 and 3.
- All of 1,2 and 3.

No, the answer is incorrect.
Score: 0

**Accepted Answers:**
*Both 1 and 2.*

2) Pick two real numbers a, b uniformly at random from infinite sample space [-1,1]. What is the probability that $a^2 + b^2 > 1$? ***1 point***

- $\pi/4$
- $1 - \pi/4$
- $\pi/16$
- $1 - \pi/16$

No, the answer is incorrect.
Score: 0

**Accepted Answers:**
$1 - \pi/4$

3) Which of the following is true for two events A and B each having non-zero probability of occurrence? ***1 point***

1. If A and B are mutually exclusive, then they are also independent.
2. If A and B are independent, then they can be mutually exclusive.

- Only 1.
- Only 2.
- Both 1 and 2.
- Neither 1 nor 2.

No, the answer is incorrect.
Score: 0

**Accepted Answers:**
*Neither 1 nor 2.*

4) Suppose the Covid-19 RT-PCR test is 95% accurate. Also assume the prevalence of Covid is 0.2, i.e. 20% of the population is Covid infected. If your RT-PCR test comes out positive, what is the probability that you are infected? ***1 point***

- 19/20
- 19/23
- 17/20
- 17/23

No, the answer is incorrect.
Score: 0

**Accepted Answers:**
*19/23*

5) Suppose you roll a dice twice. What is the probability that the sum of two rolls is an even number given that the first roll was an even number. ***1 point***

- 1
- 0
- 1/2
- 2/3

No, the answer is incorrect.
Score: 0

**Accepted Answers:**
*1/2*