

EXST7015 : Daily Design Question 06

Carefully read the description of the experiment below. Be prepared to answer the questions that follow the design description as a class quiz.

A microbiologist working with some notoriously difficult-to-culture aquatic bacteria is investigating some new cultures media. She wants to study the addition of various levels of phosphorus to agar plates. Her interest in phosphorus stems from the fact that the bacteria of interest do compete with algae for this nutrient.

Her initial study is intended to determine a minimum level of phosphorus for her cultivation medium (mg/l). The 5 levels she plans to use for her experiment are 0.1, 0.4, 0.7, 1.0 and 1.3 mg/l. She prepares 100 agar plates and assigns 20 plates each to the differing levels of phosphorus. She then adds a sample known to contain a moderate level of one of the bacteria of interest. She evaluates the success of each phosphorus level by counting the number of bacteria colonies that develop on the culture plates after 72 hours of incubation.

Questions:

What is the treatment arrangement for this experiment?

- (a) single factor (b) factorial (c) nested

What is the experimental design for this experiment?

- (a) CRD (b) RBD (c) LSD (e) Split-plot (d) Repeated Measures

Does it seem to you that the treatments are fixed or random?

- (a) fixed (b) random

What is the experimental unit for this experiment?

- (a) agar plate (b) colonies (c) hours (d) bacterial colonies (e) phosphorus level

What is the sampling unit for this experiment?

- (a) agar plate (b) colonies (c) hours (d) bacterial colonies (e) phosphorus level

What is the dependent variable for this experiment?

- (a) agar plate (b) colonies (c) hours (d) bacterial colonies (e) phosphorus level

If the design is RBD, what are the blocks?

- (a) agar plate (b) colonies (c) hours (d) bacterial colonies (e) phosphorus level

How many degrees of freedom are available for testing the treatments?

Enter the correct value here: _____