EXST7015 : Daily Design Question 09

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

The manufacturer of a new decay preventive dentifrice (fluoride toothpaste) wants to compare his new product (called "A") to the two most commonly used brands (called "B" and "C"). In order to include a wide range of demographic variables the manufacturer contacts 25 dentists, one in each of 25 different cities and asks each dentist to provide toothpaste to 30 of his patients.

In each case the Dentist is asked to provide a large toothpaste tube to his next 30 patients who currently have no cavities and who will sign the necessary forms and agree to participate in the study. The Dentist then provides the patient with randomly chosen toothpaste from a supply he has been given. The supply of 30 tubes of toothpaste are 10 each of brands A, B and C, but the dentist only knows that they are numbered 1 to 30.   He does not know which is which.

As a result, in each of the 25 cities we have 10 randomly selected patients using product "A", 10 using brand "B" and 10 using brand "C". The dependent variable is the number of cavities found during the next 6 month scheduled appointment. This value is reported by the dentist along with the number of the toothpaste tube (1 through 30 for each dentist) that was assigned to the patient.

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) toothpaste tube   (b) city   (c) patient   (d) number of cavities   (e) dentist

What is the sampling unit for this experiment?

    (a) toothpaste tube   (b) city   (c) patient   (d) number of cavities   (e) dentist

What is the dependent variable for this experiment?

    (a) toothpaste tube   (b) city   (c) patient   (d) number of cavities   (e) dentist

If the design is RBD, what are the blocks?

    (a) toothpaste tube   (b) city   (c) patient   (d) number of cavities   (e) dentist

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

    Enter the correct value here: _____