EXST7015 : Daily Design Question 18

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

A table by the Consumers Union is cited in a report by the National Highway Traffic Safety Administration, Department of Transportation (49 CFR Part 575, [Docket No. NHTSA-2001-9663; Notice 2], RIN 2127-AI81, Consumer Information Regulations; Federal Motor Vehicle Safety Standards; Rollover Resistance.). That table is given below.

Table 5: Maximum Achievable "Clean" Run Speeds For the Consumers Union Short Course Double Lane Change Maneuver – Nominal Vehicle Configuration

Test Driver	2001 Chevrolet Blazer (mph)	2001 Ford Escape (mph)	1999 Mercedes ML320 with ESC On (mph)	1999 Mercedes ML320 with ESC Off (mph)	2001 Toyota 4Runner with ESC On (mph)	2001 Toyota 4Runner with ESC Off (mph)
GF	39.3	37.0	38.8	36.7	36.5	37.7
LJ	38.1	37.1	37.1	36.6	37.4	35.7
RL	40.7	40.5	39.2	38.3	37.8	37.8

Suppose we are willing to assume that the "Maximum Achievable 'Clean' Run Speeds" are normally distributed, and meet the other assumptions for analysis of variance. We now want to test for differences between the vehicles. We are not interested in differences between drivers (but of course we must recognize that they represent a potential source of variation).

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) driver   (b) car   (c) driver/car combination   (d) run speed (mph)   (e) rollover

What is the sampling unit for this experiment?

    (a) driver   (b) car   (c) driver/car combination   (d) run speed (mph)   (e) rollover

What is the dependent variable for this experiment?

    (a) driver   (b) car   (c) driver/car combination   (d) run speed (mph)   (e) rollover

If the design is RBD, what are the blocks?

    (a) driver   (b) car   (c) driver/car combination   (d) run speed (mph)   (e) rollover

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

    Enter the correct value here: _____