



FINAL EXAM OF ODD SEMESTER ACADEMIC YEAR 2020/2021

Course Name : Design of Experiment
Study Program/Class : Statistika/C
Day/Date : Selasa, 12 Januari 2021
Time : 120 menit
Lecturer : Mujiati Dwi Kartikasari, M.Sc.
Exam Description : Open All
Online Media : Google Classroom

PLO : Designing experiments and collecting data through surveys, experiments, or simulations. Organizing and analyzing these data using statistical techniques and extracting valid conclusions by utilizing at least one type of statistical software.

Number 1 [Points 50]

CO : Students have the ability to test the hypotheses upon some design of experiments' problems, Students have the ability to draw and communicate the conclusion based on hypotheses testing.

Instructions/question materials

The following data are data obtained from the 2^3 factorial experiment which was repeated three times.

Treatment combination	Rep 1	Rep 2	Rep 3
(1)	12	19	10
<i>a</i>	15	20	16
<i>b</i>	24	16	17
<i>c</i>	17	25	21
<i>ab</i>	23	17	27
<i>ac</i>	16	19	19
<i>bc</i>	24	23	26
<i>abc</i>	25	28	20

- [20] Determine the value of the second row of the Yates method.
- [30] Give a conclusion for the above experiment (use $\alpha = 0.05$)

Number 2 [Points 50]

CO : Students have the ability to test the hypotheses upon some design of experiments' problems, Students have the ability to draw and communicate the conclusion based on hypotheses testing.

Instructions/question materials

Suppose there is an experiment involving factors A, B, and C. The model used in this experiment is a fixed model with the following experimental data.

	B_1			B_2		
	C_1	C_2	C_3	C_1	C_2	C_3
A_1	4.0	3.4	3.9	4.4	3.1	3.1
A_1	4.9	4.1	4.3	3.4	3.5	3.7
A_2	3.6	2.8	3.1	2.7	2.9	3.7
A_2	3.9	3.2	3.5	3.0	3.2	4.2
A_3	4.8	3.3	3.6	3.6	2.9	2.9
A_3	3.7	3.8	4.2	3.8	3.3	3.5
A_4	3.6	3.2	3.2	2.2	2.9	3.6
A_4	3.9	2.8	3.4	3.5	3.2	4.3

- a) [30] Give a conclusion for the above experiment (use $\alpha = 0.05$)
- b) [20] Among factors A, B, and C, determine which factor has the least effect on the experiment.

The verification of Final Exam, Odd Academic Year 2020/2021

The suitability of the problems with CO	The Completeness of the problems information	Verifier	Verification date	Sign
Suitable/ Less suitable / Not Suitable	Complete/ Less Complete / Not Complete	Science cluster coordinator	7-Jan-2021	