



UNIVERSITAS ISLAM INDONESIA
FAKULTAS MIPA
Jl. Kaliurang Km. 14,5 Jogjakarta

MIDTERM EXAM OF ODD SEMESTER ACADEMIC YEAR 2020/2021


Course Name : Design of Experiment
Study Program/Class : Statistika/C
Day/Date : Selasa, 10 November 2020
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 20] |
| CO : Students have the ability to explain the basic concepts of statistics for the design of Experiment. |
| Instructions/question materials |
| a). Give a brief explanation of the differences between Completely Randomized Design, Randomized Complete Block Design, and Latin Square Design, Graeco-Latin Square Design. b). What is a multiple comparison test? Mention (at least) 2 multiple comparison tests. |
| Number 2 [Points 80] |
| 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 results of the screening technique trial to determine the damage to the car body were carried out using five techniques (A, B, C, D, E). Five groups of car brands (1,2,3,4,5), five software (1,2,3,4,5), and five operators ($\alpha, \beta, \gamma, \delta, \varepsilon$) were selected. in this trial as a form of diversity control. The experiment was carried out using a Graeco-Latin Square Design. The experimental data in the form of the length of time for identifying car body damage (in hours) are presented in the following table. |

| Car Brand | Software | | | | |
|-----------|------------------|------------------|------------------|------------------|------------------|
| | 1 | 2 | 3 | 4 | 5 |
| 1 | $A\alpha = 26$ | $B\beta = 16$ | $C\gamma = 19$ | $D\delta = 16$ | $E\epsilon = 13$ |
| 2 | $B\gamma = 18$ | $C\delta = 20$ | $D\epsilon = 18$ | $E\alpha = 10$ | $A\beta = 21$ |
| 3 | $C\epsilon = 20$ | $D\alpha = 12$ | $E\beta = 14$ | $A\gamma = 23$ | $B\delta = 13$ |
| 4 | $D\beta = 16$ | $E\gamma = 17$ | $A\delta = 24$ | $B\epsilon = 14$ | $C\alpha = 17$ |
| 5 | $E\delta = 10$ | $A\epsilon = 24$ | $B\alpha = 17$ | $C\beta = 17$ | $D\gamma = 13$ |

Give a conclusion on the experiment (The significance level used is 0,05).

| The verification of Midterm 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 | 5-Nov-2020 |  |

Nama :

NIM :

Soal 1

- a). Jawaban
- b). Jawaban

Soal 2

- a). - Hipotesis
 - Taraf signifikansi
 - Statistik uji (buat tabel anova di sini (boleh dengan SC R))
 - Keputusan
 - Kesimpulan
- b). Boleh dengan SC R, dan beri kesimpulan
- c). Boleh dengan SC R, dan diberi kesimpulan